

32615

# SWEEP GENERATOR RS-50

PART II MAINTENANCE

## OPERATING AND INSTRUCTION MANUAL

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*Texscan*



#### CERTIFICATION

Texscan Corporation certifies that this instrument has been thoroughly tested, inspected, and found to be in compliance with its published specifications.

SECTION 5  
*510 4089*  
MAINTENANCE

5.1 INTRODUCTION

As in trouble shooting any electronic equipment, the best approach is to systematically attempt to isolate the problem to a particular circuit, and then a component by the process of elimination. Before attempting to find any failure, it is suggested that the trouble shooting technician or engineer become familiar with the equipment by reading Sections 2 and 3 of this manual. The following section, Section 5.2, presents a trouble shooting chart which lists some of the more common failures. This chart should assist in finding or localizing the defective part. A VTVM and an oscilloscope should be sufficient tools in testing the unit.

5.2 TROUBLE SHOOTING CHART

| <u>SYMPTOM</u>                            | <u>CHECK</u>                                                                                                                                             |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>5.2.1</u>                              |                                                                                                                                                          |
| Power switch on, but scale does not light | F1, S1                                                                                                                                                   |
| <u>5.2.2</u>                              |                                                                                                                                                          |
| F1 blows when unit turned on              | Power supply transistors;<br>Power supply rectifier (s)<br>shorted; T1                                                                                   |
| <u>5.2.3</u>                              |                                                                                                                                                          |
| No RF output                              | Internal detector; (be sure with external detector before proceeding); power supply voltages; leveler voltage; oscillator or video amplifier transistors |
| <u>5.2.4</u>                              |                                                                                                                                                          |
| All pulse markers missing                 | Q645, S641                                                                                                                                               |
| F <sub>3</sub> pulse missing              | Q601,A-B; Q603,Q604,R809B                                                                                                                                |
| F <sub>4</sub> pulse missing              | Q621,A-B; Q623,Q624,R810B                                                                                                                                |
| Variable marker pulse missing             | Q641,A-B; Q643,Q644                                                                                                                                      |

Section 5  
Maintenance

SYMPTOM

CHECK

5.2.5

Dual trace works but dual rate doesn't

Q203

5.2.6

Dual trace doesn't work but dual rate does

Q201, Q202

5.2.7

Neither dual trace nor dual rate operate

Q206, Q207; Q208, Q209 if no blanking signal present

5.2.8

Pen lift relay contact doesn't close

Q212, Q213, Z201, S202

5.2.9

Video blanking doesn't work but RF blanking does

Q211, S201 not closed

5.2.10

RF blanking is inoperative

Q208, Q209, Q210, Q456, Q457, D453

5.2.11

Rate circuit will not function in any mode

Q107, Q109, Q110, Q112, Q113, Q114, D101

5.2.12

Scope horizontal drive waveform present but no sweep voltage to oscillator

Q108, Q201, Q202, Q701

5.2.13

Single sweep works but external trigger inoperative

Q101, Q102

5.2.14

In single sweep or trigger position of mode switch, rate circuit off but won't trigger

Q103, Q104, or R105 needs readjustment

SYMPTOM

CHECK

5.2.15

RF level vernier doesn't cover correct range

Setting of RF level minimum and maximum controls

5.2.16

1 KHz modulation inoperative

Q458, Q459

5.2.17

No output from log amplifier

D452, D451, IC451, IC452

5.2.18

Very large output from log amplifier with no change when input changed

Q460

5.2.19

Sweep drive present on R717 wiper but no drive to oscillator

Q702, Q703

5.2.20

External FM/phase lock inoperative

Q704

5.2.21

Plug-in marker birdies missing

Q301, Q302, Q303, Q306, Q305

5.2.22

External marker input produces no birdy

Q304, CR351

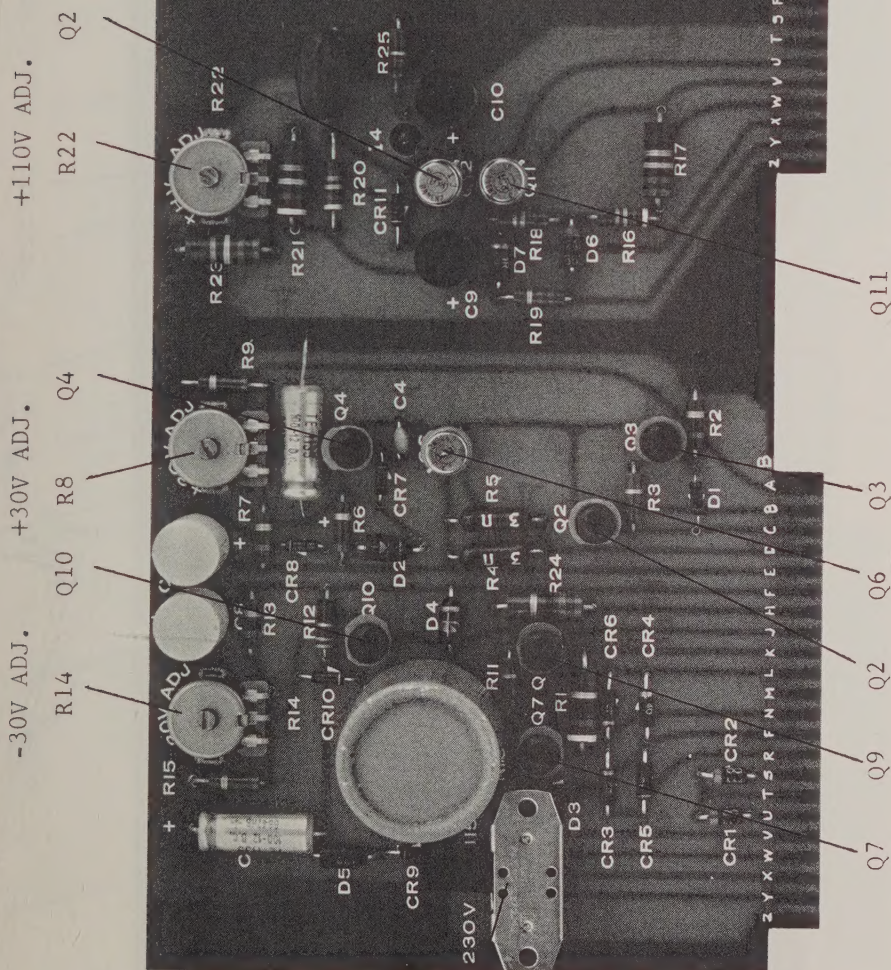


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**SECTION 6**  
**DOCUMENTATION**





POWER SUPPLY BOARD

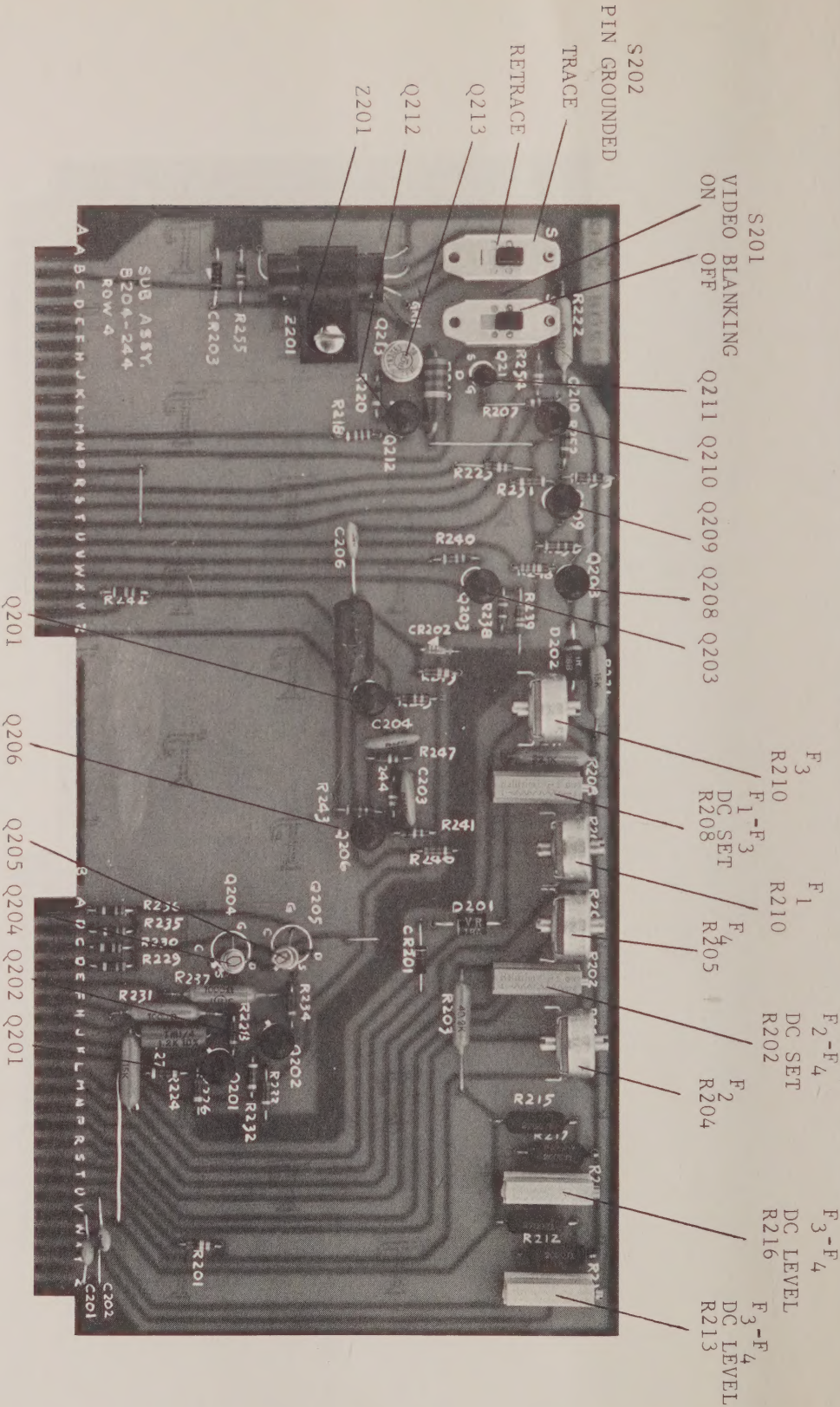
FIGURE 6-1

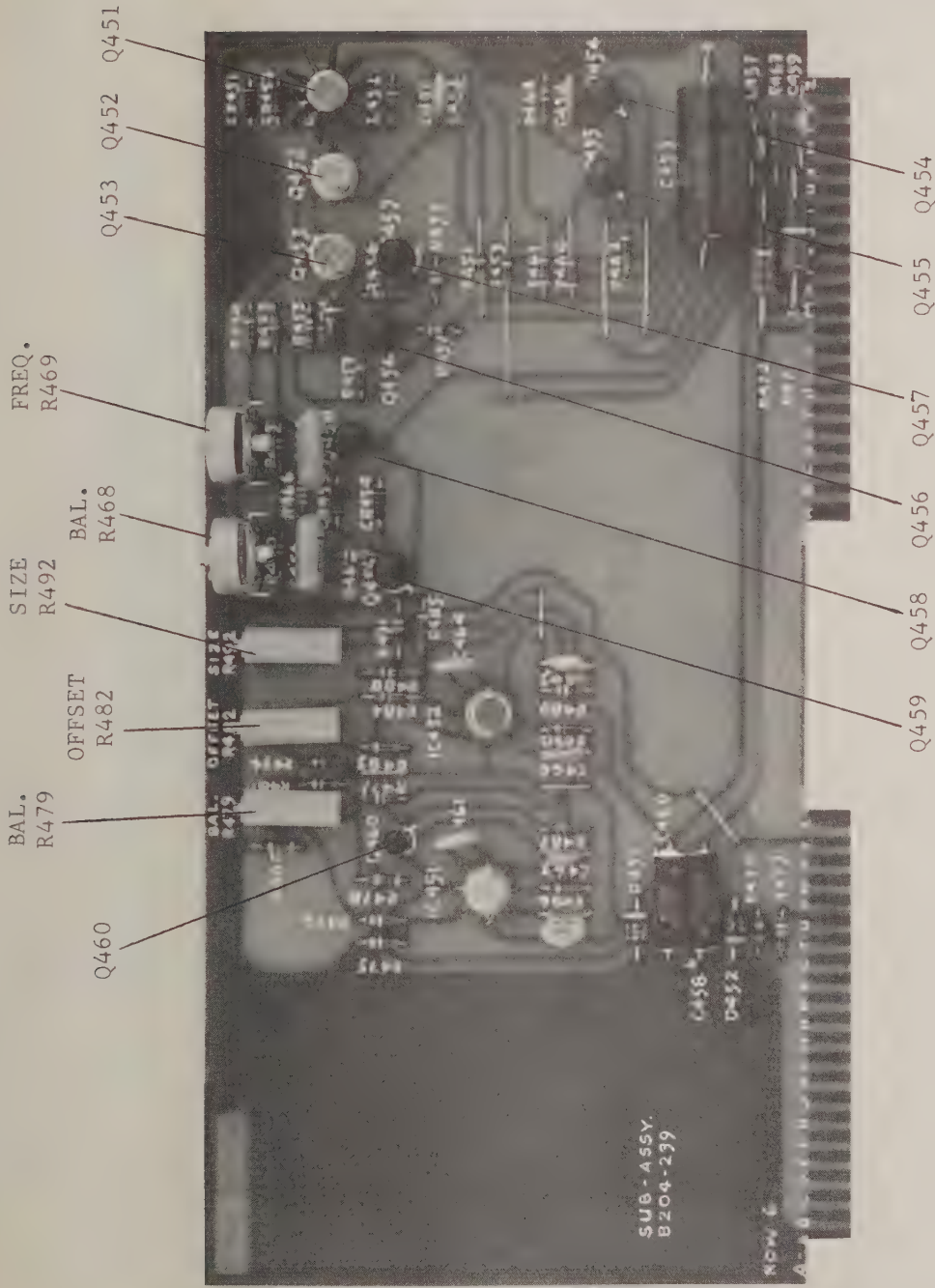
B204-235

B204-244

DUAL RATE BOARD

FIGURE 6-2

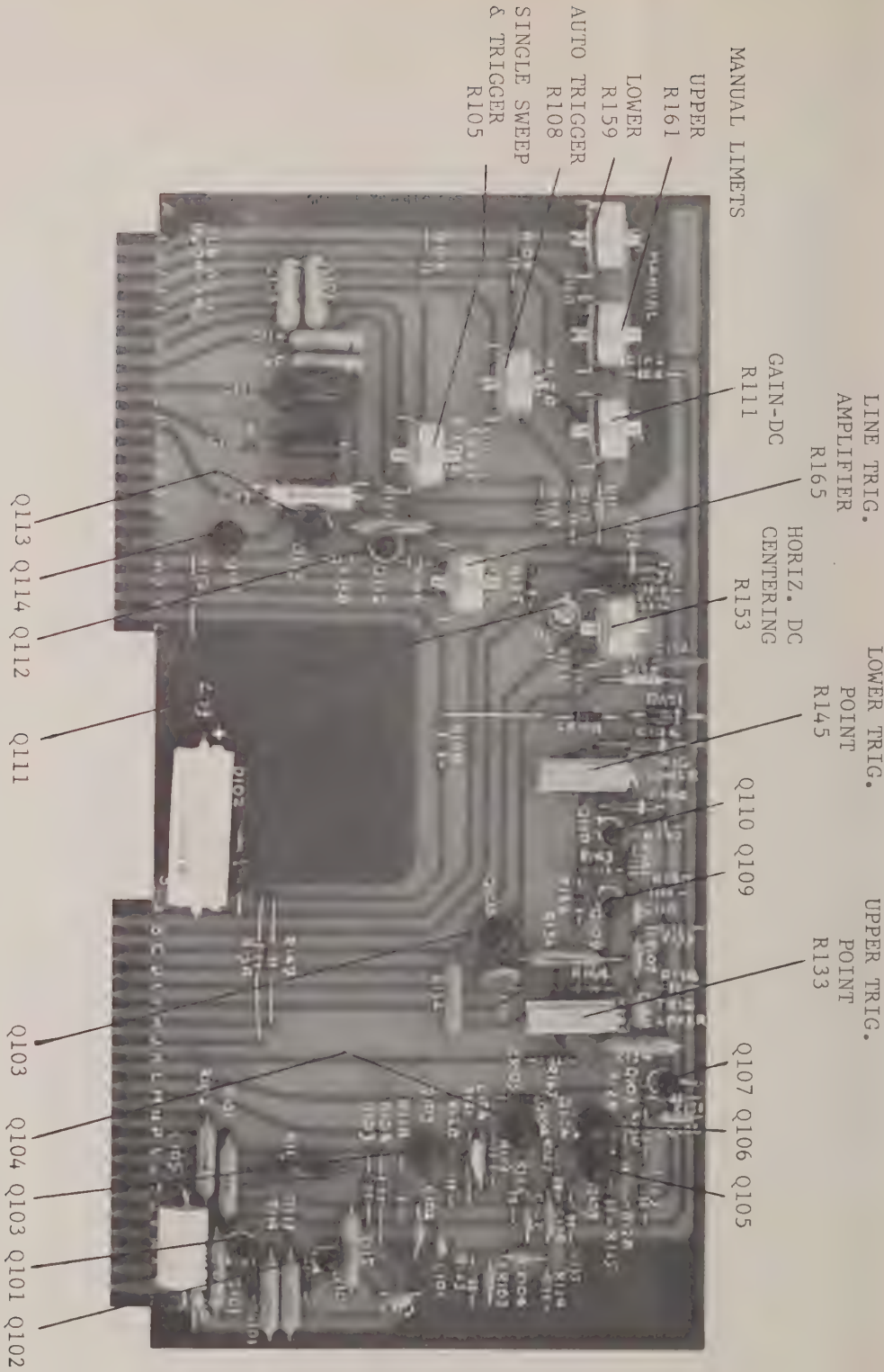




LOG AMPLIFIER & LEVELER BOARD

FIGURE 6-3

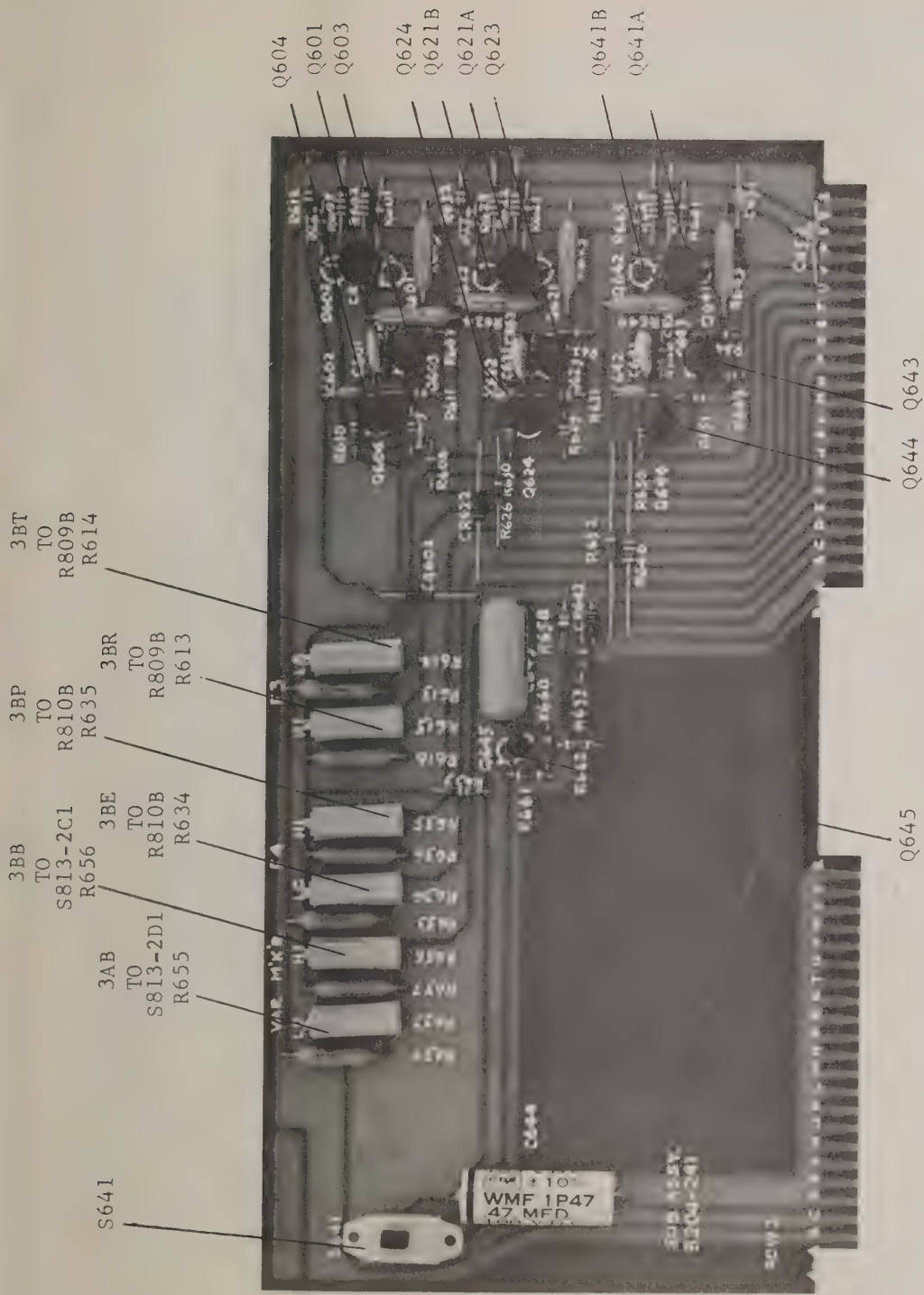
B204-239



B204-242

TRIGGER GENERATOR & RATE BOARD

FIGURE 6-4

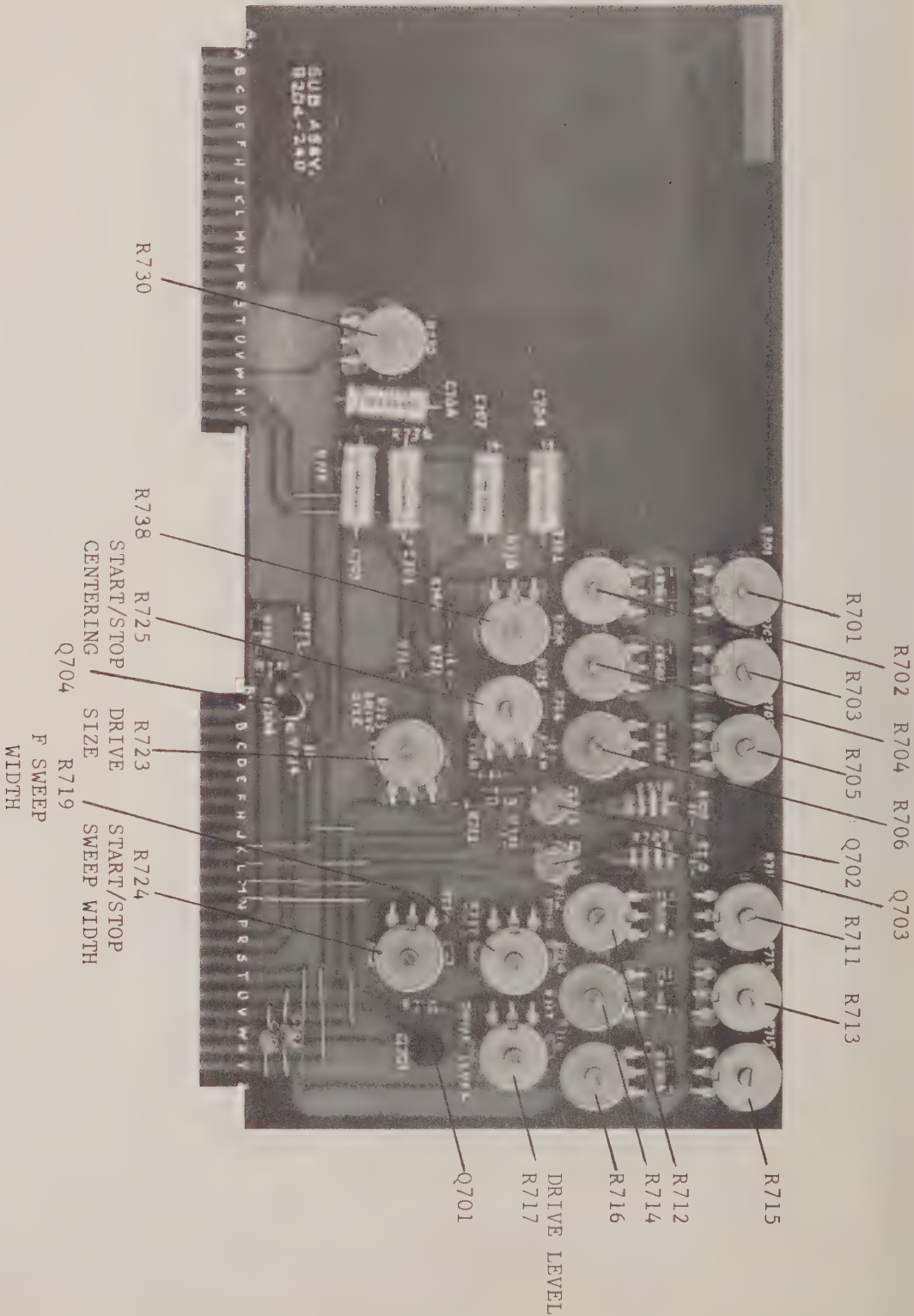


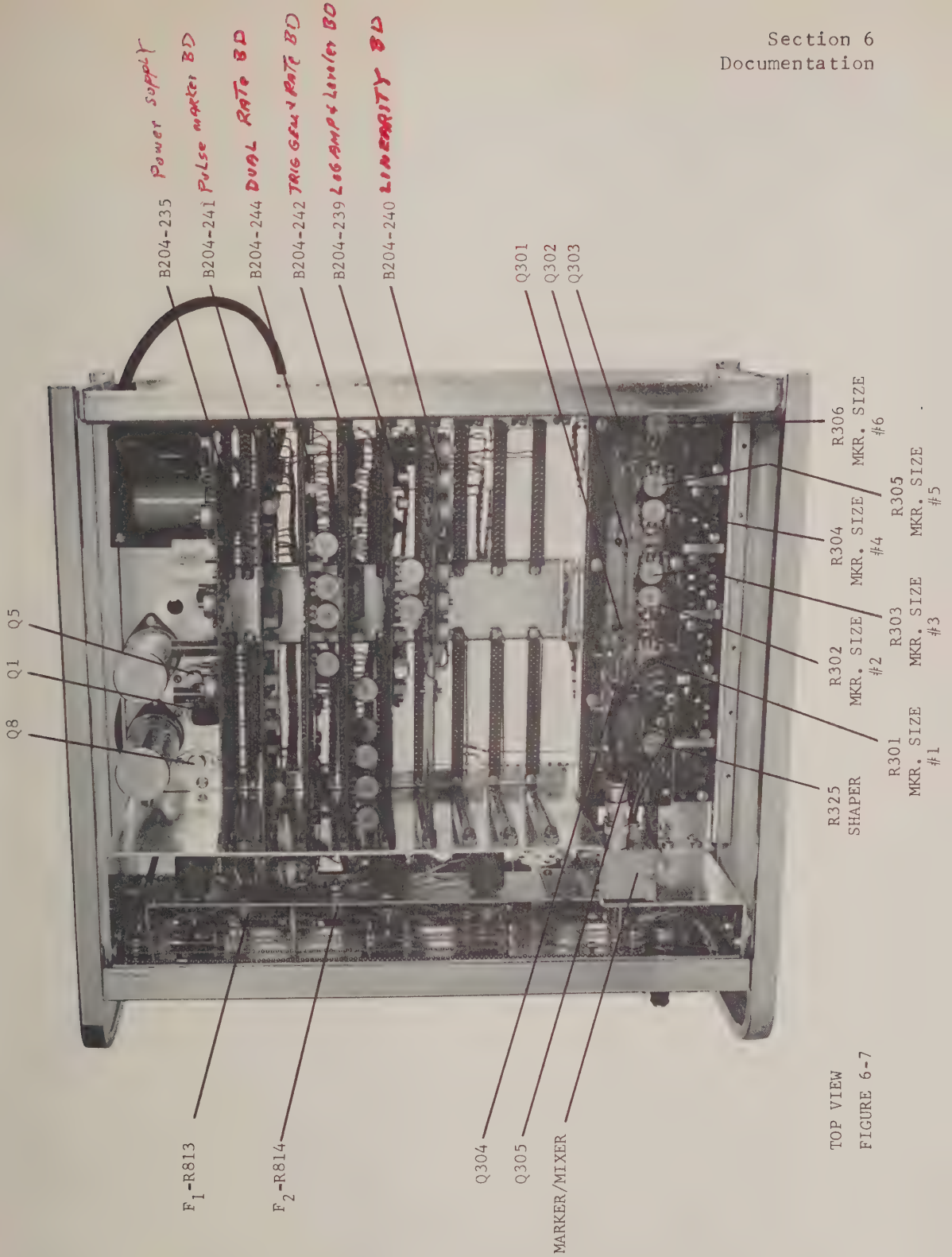
PULSE MARKER BOARD  
FIGURE 6-5

B204-241

B204-240

LINEARITY BOARD  
FIGURE 6-6

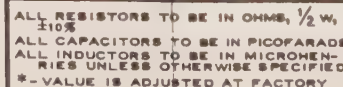


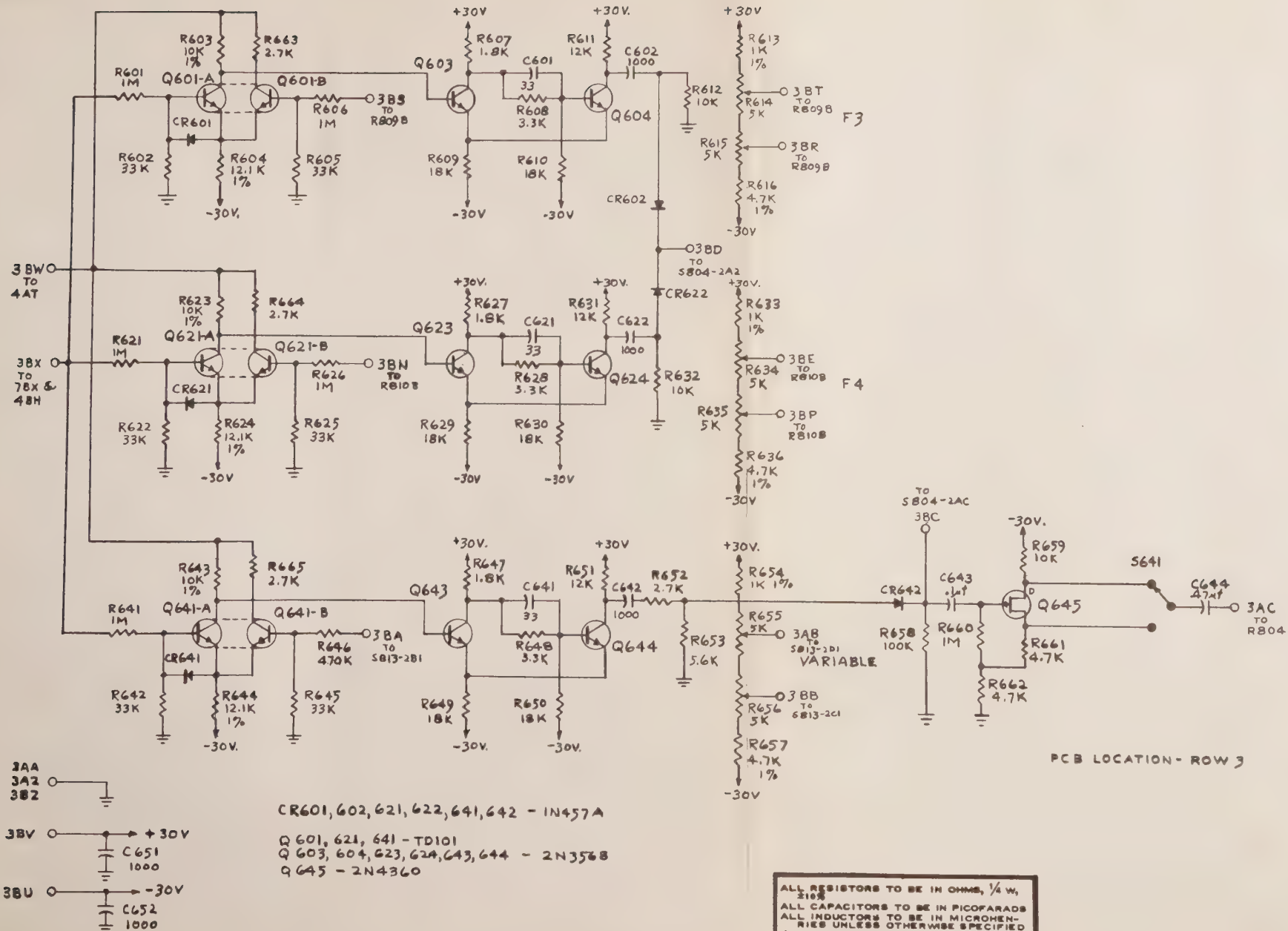


1793

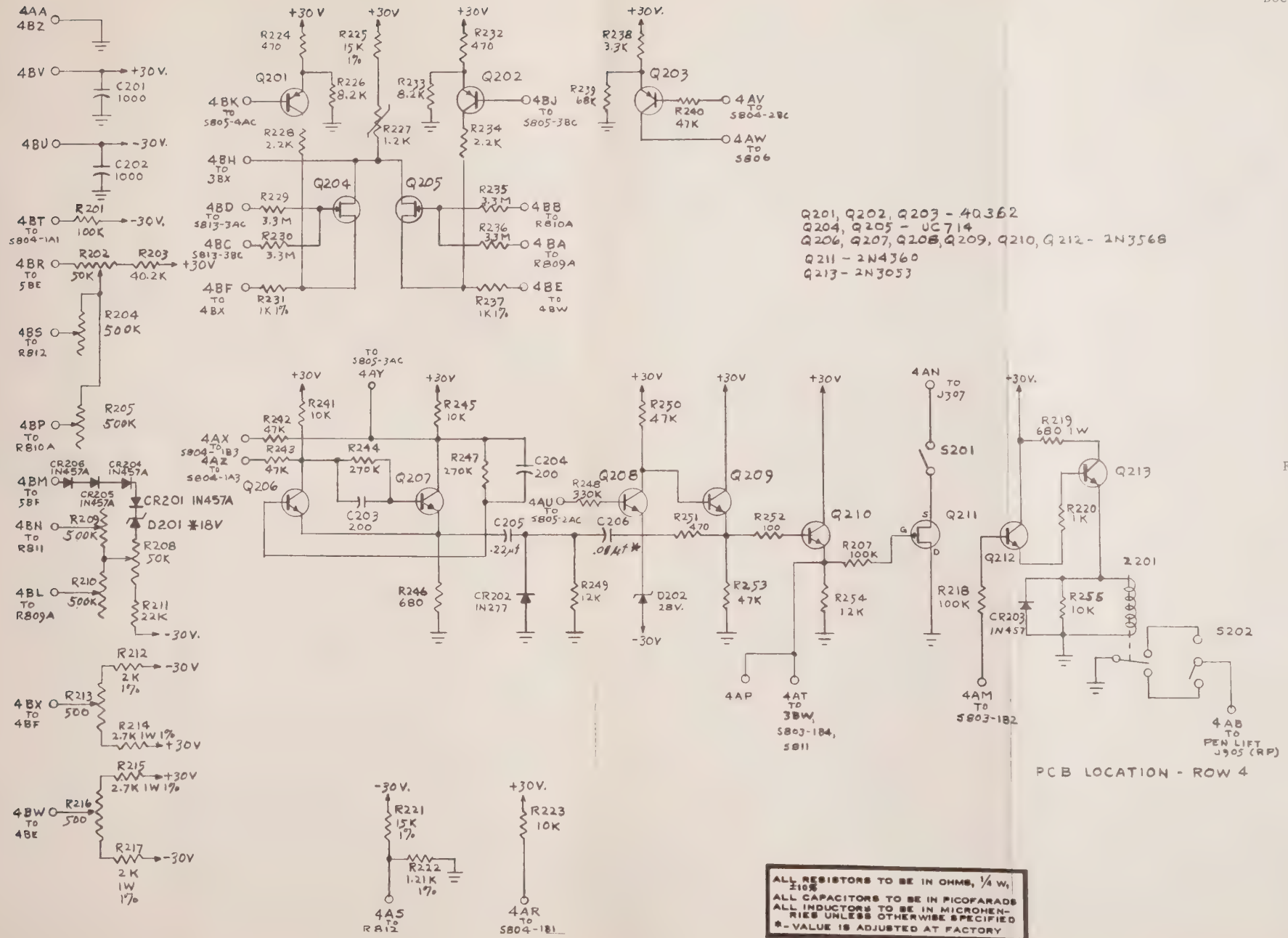
6-7

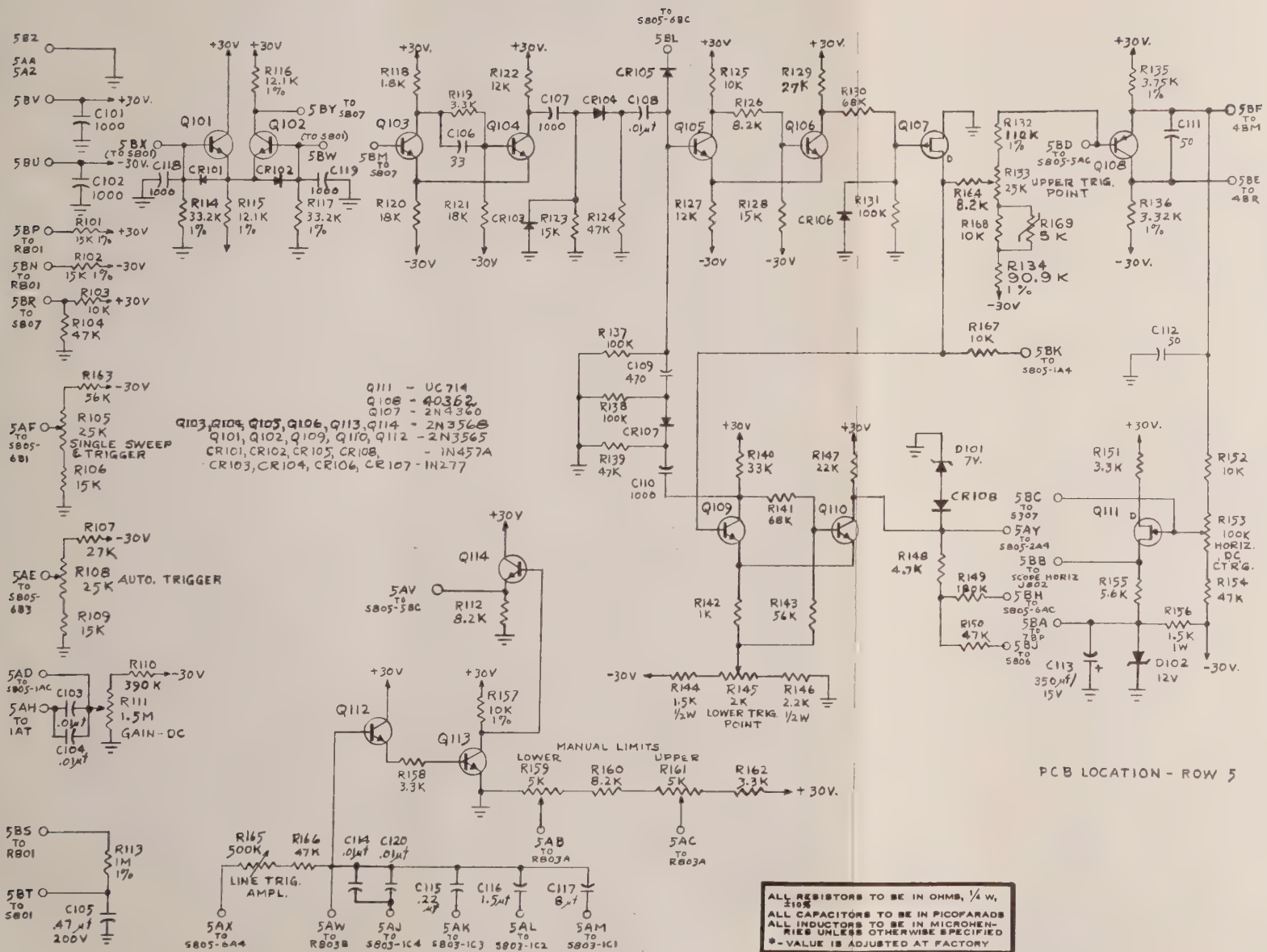






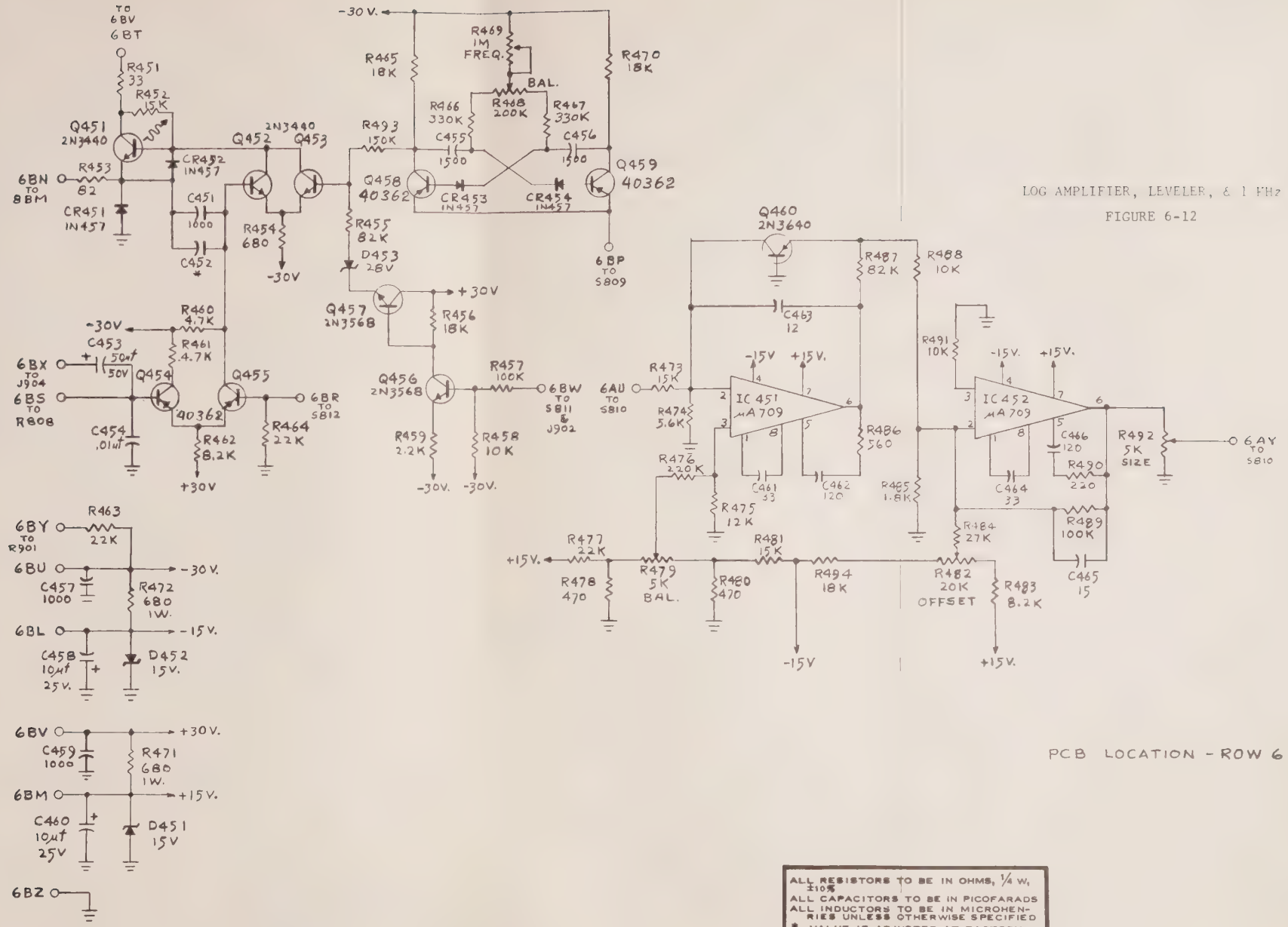
PULSE MARKERS  
FIGURE 6-9





TRIGGER GENERATOR & RATE

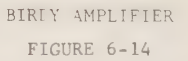
FIGURE 6-11



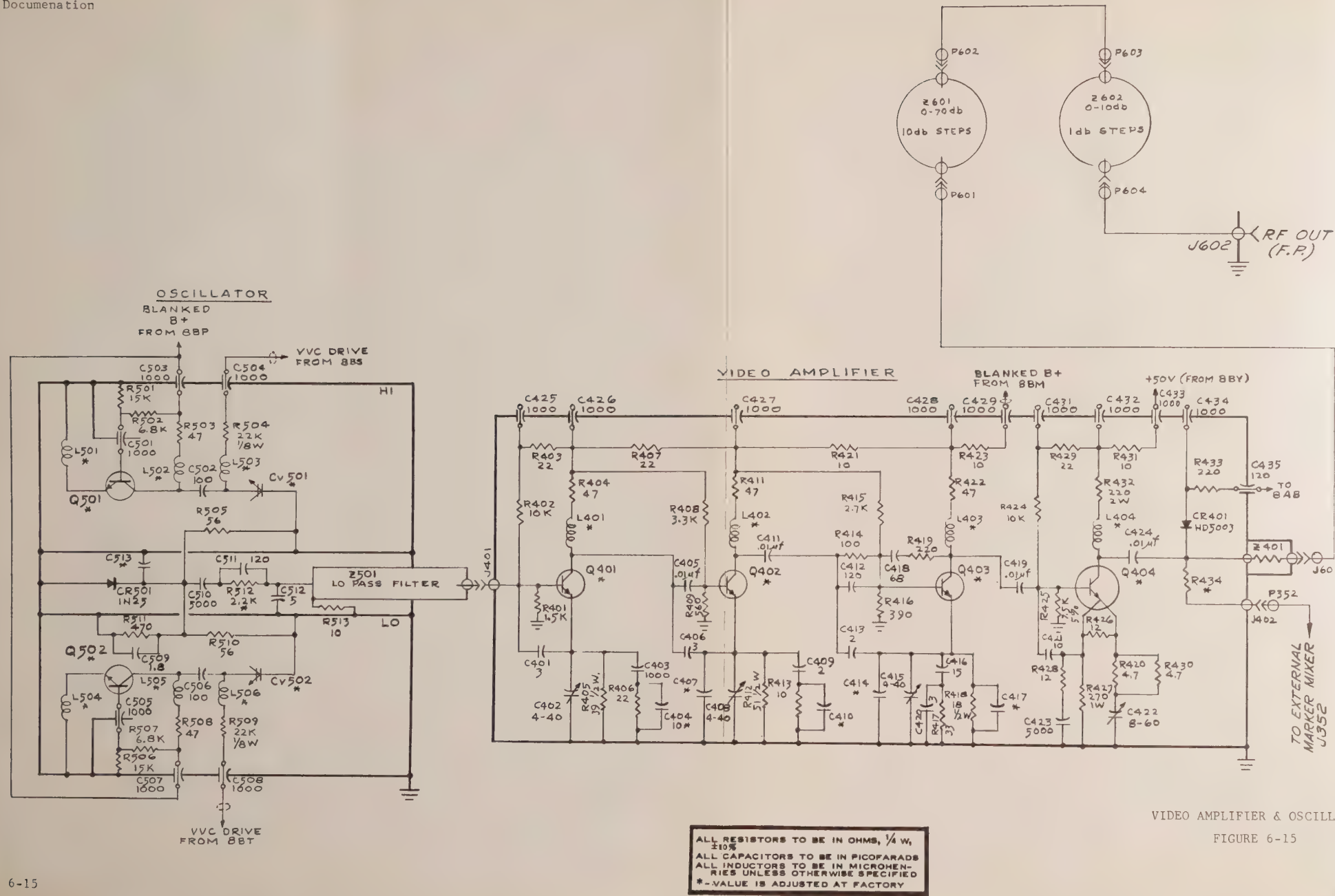


1799

ALL RESISTORS TO BE IN OHMS,  $\frac{1}{8}$  W,  
 $\pm 10\%$   
 ALL CAPACITORS TO BE IN PICOFARADS  
 ALL INDUCTORS TO BE IN MICRON-  
 HES UNLESS OTHERWISE SPECIFIED  
 \* - VALUE IS ADJUSTED AT FACTORY

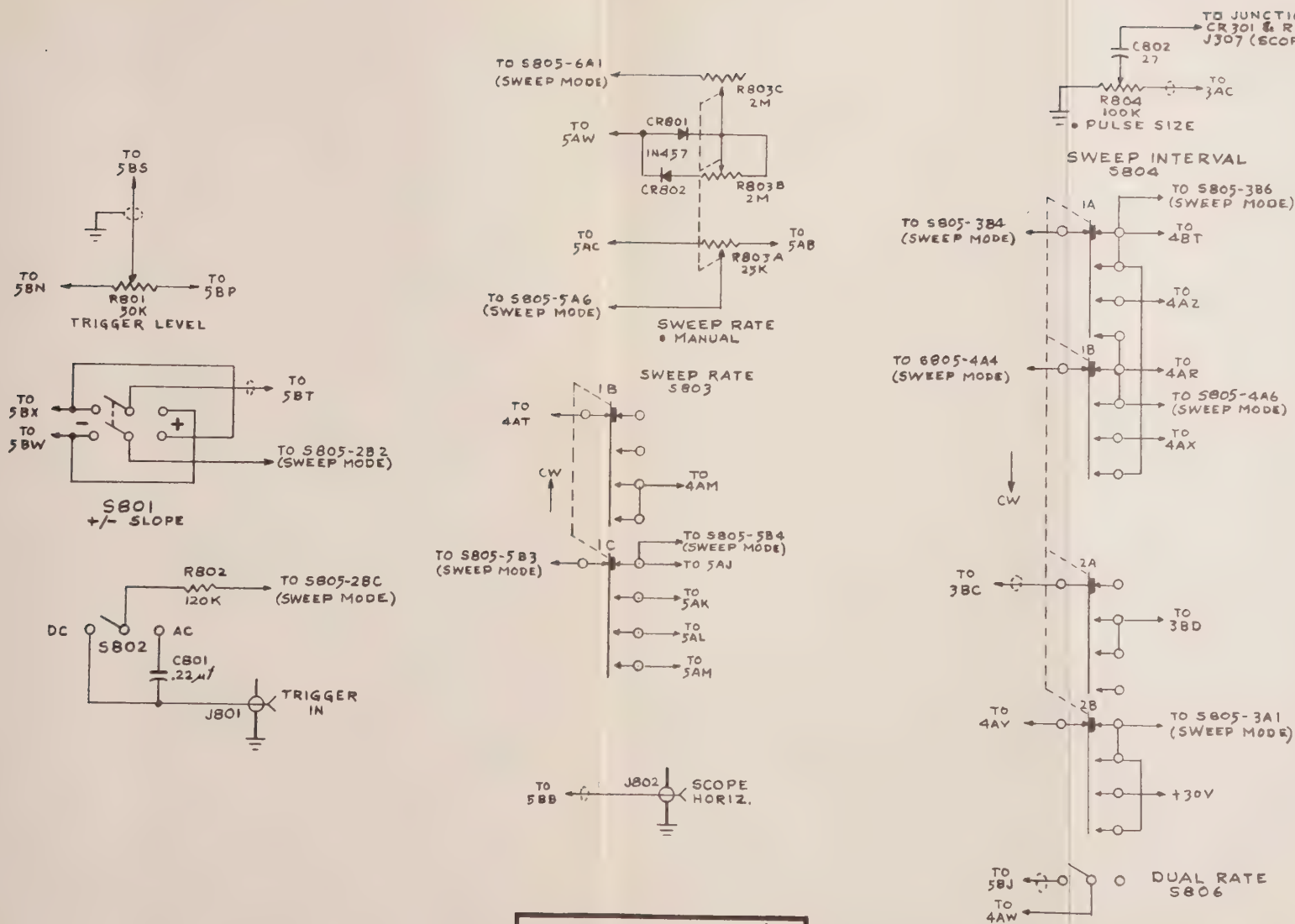


ALL RESISTORS TO BE IN OHMS,  $\frac{1}{4}$  W,  
 $\pm 10\%$   
 ALL CAPACITORS TO BE IN PICOFARADS  
 ALL INDUCTORS TO BE IN MICROHEN-  
 RIES UNLESS OTHERWISE SPECIFIED  
 \* - VALUE IS ADJUSTED AT FACTORY

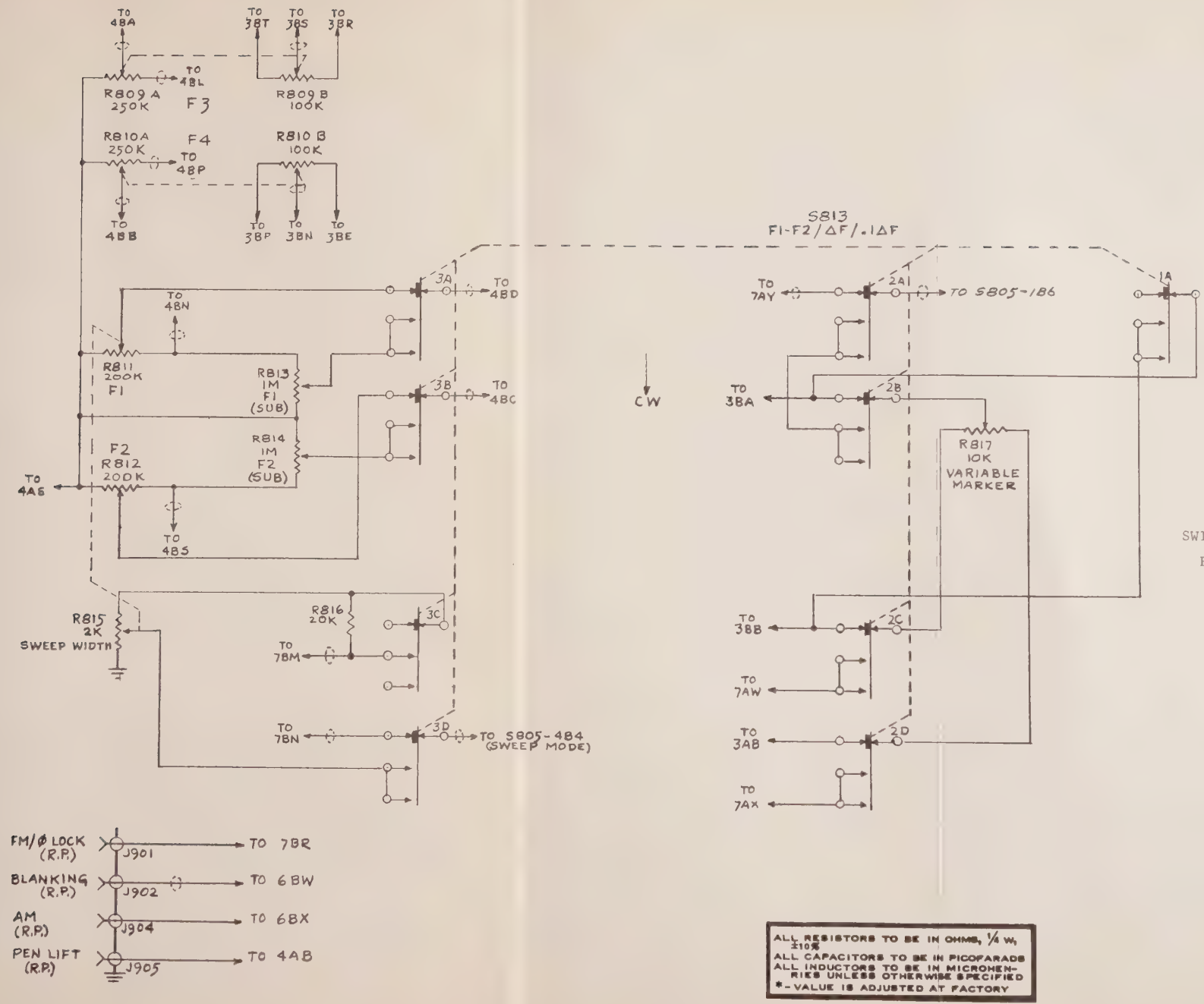


VIDEO AMPLIFIER & OSCILLATOR

FIGURE 6-15



ALL RESISTORS TO BE IN OHMS, 1/4 W, ±10%  
ALL CAPACITORS TO BE IN PICOFARADS  
ALL INDUCTORS TO BE IN MICROHENRIES UNLESS OTHERWISE SPECIFIED  
\*- VALUE IS ADJUSTED AT FACTORY



SWITCH WIRING #3  
FIGURE 6-18

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                                              | MFG., MFG. PART NO.                                 |
|---------------------|----------------------|----------------------------------------------------------|-----------------------------------------------------|
| C1                  | 012-075              | Capacitor, Fixed, 20/300V, 80/300V,<br>200/150V, 20/300V | Mallory WP419.39A                                   |
| C2                  | 012-159              | Capacitor, Fixed, 80/400V, 40/400V,<br>150/50V           | Mallory FP333.3A<br>Mallory MFV50DE50<br>RMC SM.001 |
| C3                  | 012-082              | Capacitor, Fixed, 50uf, 50V                              | Sprague 30D1076012DC4                               |
| C4                  | 012-009              | Capacitor, Fixed, 1000pf                                 | Mallory FP116A                                      |
| C5                  | 012-015              | Capacitor, Fixed, 100uf, 12V                             | Sprague 30D1076012DC4                               |
| C6                  | 012-079              | Capacitor, Fixed, 100uf, 150V                            | Mallory MFV50DE50                                   |
| C7                  | 012-015              | Capacitor, Fixed, 100uf, 12V                             | Cornell-Dubilier 2P22                               |
| C8                  | 012-082              | Capacitor, Fixed, 50uf, 50V                              | RMC SM.001                                          |
| C11                 | 012-051              | Capacitor, Fixed, .22uf, 200V                            | RMC SM.001                                          |
| C101                | 012-009              | Capacitor, Fixed, 1000pf                                 | Sprague 22SP10391                                   |
| C102                | 012-009              | Capacitor, Fixed, 1000pf                                 | Sprague 22SP10391                                   |
| C103                | 012-066              | Capacitor, Fixed, .01uf                                  | TRW                                                 |
| C104                | 012-066              | Capacitor, Fixed, .01uf                                  | RMC 33NPO                                           |
| C105                | 012-152              | Capacitor, Fixed, .47uf, 200V                            | RMC SM.001                                          |
| C106                | 012-152              | Capacitor, Fixed, .47uf, 200V                            | RMC TA.01                                           |
| C107                | 012-084              | Capacitor, Fixed, 33pf                                   | RMC Type TA                                         |
| C108                | 012-009              | Capacitor, Fixed, 1000pf                                 | RMC SM.001                                          |
| C109                | 012-050              | Capacitor, Fixed, .01uf                                  | RMC N-750                                           |
| C110                | 012-033              | Capacitor, Fixed, .470pf                                 | RMC N-750                                           |
| C111                | 012-009              | Capacitor, Fixed, 1000pf                                 | Mallory MTA350F15                                   |
| C112                | 012-012              | Capacitor, Fixed, 50pf                                   | Sprague 22SP10391                                   |
| C113                | 012-012              | Capacitor, Fixed, 50pf                                   | Cornell-Dubilier DMF 1P22                           |
| C114                | 012-113              | Capacitor, Fixed, 350uf, 15V                             | Kemet KIR5C35K                                      |
| C115                | 012-066              | Capacitor, Fixed, .01uf                                  | Sprague TEL303.3                                    |
| C116                | 012-020              | Capacitor, Fixed, .22uf, 100V                            | RMC SM.001                                          |
| C117                | 012-155              | Capacitor, Fixed, 1.5uf                                  | RMC SM.001                                          |
| C118                | 012-162              | Capacitor, Fixed, 8uf                                    | Sprague 22SP10391                                   |
| C119                | 012-009              | Capacitor, Fixed, 1000pf                                 | RMC SM.001                                          |
| C120                | 012-066              | Capacitor, Fixed, .01uf                                  | RMC SM.001                                          |
| C201                | 012-009              | Capacitor, Fixed, 1000pf                                 | RMC Type C N1500                                    |
| C202                | 012-009              | Capacitor, Fixed, 1000pf                                 | RMC Type C N1500                                    |
| C203                | 012-052              | Capacitor, Fixed, 200pf                                  | Cornell-Dubilier DMF 1P22                           |
| C204                | 012-052              | Capacitor, Fixed, 200pf                                  |                                                     |
| C205                | 012-020              | Capacitor, Fixed, .22uf, 100V                            |                                                     |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                        | MFG., MFG. PART NO.      |
|---------------------|----------------------|------------------------------------|--------------------------|
| C206                | 012-005              | Capacitor, Fixed, .01uf            | RMC 185V.01              |
| C301                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C302                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C303                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C304                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C305                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C306                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C307                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C308                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C309                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C310                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C311                | 012-009              | Capacitor, Fixed, 1000pf           | RMC TA.01                |
| C312                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C313                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C314                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C315                | 012-150              | Capacitor, Fixed, 120pf            | Centralab DD-121         |
| C316                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C317                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C351                | 012-001              | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C401                | 012-010              | Capacitor, Fixed, 3pf, 1000V       | RMC TC-NPO               |
| C402                | 015-009              | Capacitor, Variable, 8-60pf        | Arco 404                 |
| C403                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C404                | 012-011              | Capacitor, Fixed, 10pf             | RMC TC-NPO               |
| C405                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C406                | 012-089              | Capacitor, Fixed, 2pf, 500V        | Quality Components MC2.0 |
| C407*               |                      | Factory Selected Value             |                          |
| C408                | 015-009              | Capacitor, Variable, 8-60pf        | Arco 404                 |
| C409*               |                      | Factory Selected Value             |                          |
| C410*               |                      | Factory Selected Value             |                          |
| C411*               |                      | Factory Selected Value             |                          |
| C412                | 012-050              | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C413                | 012-089              | Capacitor, Fixed, 2pf, 500V        | Quality Components MC2.0 |
| C414                | 012-092              | Capacitor, Fixed, 5pf, 1000V       | RMC Type C               |
| C415                | 015-009              | Capacitor, Variable, 8-60pf        | Arco 404                 |
| C416                | 012-005              | Capacitor, Fixed, .01uf            | RMC Z5U.01               |
| C417                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |

CIRCUIT  
REF. NO.TEXSCAN  
STOCK NO.

DESCRIPTION

MFG., MFG. PART NO.

|      |         |                                    |                          |
|------|---------|------------------------------------|--------------------------|
| C418 | 012-156 | Capacitor, Fixed, 47pf, 1000V      | Centralab                |
| C419 | 012-005 | Capacitor, Fixed, .01uf            | RMC Z5U.01               |
| C420 | 012-010 | Capacitor, Fixed, 3pf, 1000V       | RMC TC-NPO               |
| C421 | 012-011 | Capacitor, Fixed, 10pf             | RMC TC-NPO               |
| C422 | 015-009 | Capacitor, Variable, 8-60pf        | Arco 404                 |
| C423 | 012-085 | Capacitor, Fixed, .005uf, 100V     | RMC SM.005               |
| C424 | 012-005 | Capacitor, Fixed, .01uf            | RMC Z5U.01               |
| C425 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C426 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C427 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C428 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C429 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C431 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C432 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C433 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C434 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C435 | 012-058 | Capacitor, Fixed, 120pf Feed-thru  | Allen Bradley FA5C       |
| C451 | 012-009 | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C452 | 012-009 | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C453 | 012-027 | Capacitor, Fixed, 50uf, 50V        | Cornell-Dubilier BR50-50 |
| C454 | 012-050 | Capacitor, Fixed, .01uf, 100V      | RMC TA.01                |
| C455 | 012-069 | Capacitor, Fixed, 1500pf           | Sprague 225P15291        |
| C456 | 012-069 | Capacitor, Fixed, 1500pf           | Sprague 225P15291        |
| C457 | 012-009 | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C458 | 012-087 | Capacitor, Fixed, 10uf, 25V        | Sprague 31D87            |
| C459 | 012-009 | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C460 | 012-087 | Capacitor, Fixed, 10uf, 25V        | Sprague 31D87            |
| C461 | 012-084 | Capacitor, Fixed, 33pf             | RMC 33NPO                |
| C462 | 012-013 | Capacitor, Fixed, 120pf            | RMC Type C N1500         |
| C463 | 012-083 | Capacitor, Fixed, 12pf             | RMC 12NPO                |
| C464 | 012-084 | Capacitor, Fixed, 33pf             | RMC 33NPO                |
| C465 | 012-103 | Capacitor, Fixed, 15pf             | RMC Type C NPO           |
| C466 | 012-013 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C501 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C502 | 012-118 | Capacitor, Fixed, 100pf, 300V      | JFD FCJ-81               |
| C503 | 012-001 | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                        | MFG., MFG. PART NO.      |
|---------------------|----------------------|------------------------------------|--------------------------|
| C504                | 012-001              | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C505                | 012-001              | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C506                | 012-118              | Capacitor, Fixed, 1000pf, 300V     | JFD FCJ-81               |
| C507                | 012-001              | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C508                | 012-001              | Capacitor, Fixed, 1000pf Feed-thru | Allen Bradley FA5C       |
| C509                | 012-070              | Capacitor, Fixed, 1.8pf, 500V      | Quality Components       |
| C510                | 012-085              | Capacitor, Fixed, .005uf, 100V     | RMC SM.005               |
| C511                | 012-150              | Capacitor, Fixed, 120pf, 1000V     | Centralab Type DD-121    |
| C512                | 012-092              | Capacitor, Fixed, 5pf, 1000V       | RMC Type C               |
| C513                | 012-010              | Capacitor, Fixed, 3pf, 50V         | RMC TC-NPO               |
| C601                | 012-084              | Capacitor, Fixed, 33pf             | RMC 33NPO                |
| C602                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C621                | 012-084              | Capacitor, Fixed, 33pf             | RMC 33NPO                |
| C622                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C641                | 012-084              | Capacitor, Fixed, 33pf             | RMC 33NPO                |
| C642                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C643                | 012-101              | Capacitor, Fixed, .1uf             | Sprague ZPS-P10          |
| C644                | 012-105              | Capacitor, Fixed, .47uf            | Cornell-Dubilier WMP1P47 |
| C651                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C652                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C701                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C702                | 012-009              | Capacitor, Fixed, 1000pf           | RMC SM.001               |
| C703                | 012-064              | Capacitor, Fixed, 25uf, 25V        | Sprague TE1207           |
| C704                | 012-064              | Capacitor, Fixed, 25uf, 25V        | Sprague TE1207           |
| C705                | 012-064              | Capacitor, Fixed, 25uf, 25V        | Sprague TE1207           |
| C706                | 012-064              | Capacitor, Fixed, 25uf, 25V        | Sprague TE1207           |
| C707                | 012-064              | Capacitor, Fixed, 25uf, 25V        | Sprague TE1207           |
| C801                | 012-020              | Capacitor, Fixed, 22uf, 100V       | Cornell-Dubilier DM1P22  |
| C802                | 012-030              | Capacitor, Fixed, 27pf             | Centralab 1P270          |
| C803                | 012-155              | Capacitor, Fixed, 1.5uf            | RMC TC-NPO               |
| CR1                 | 025-044              | Diode, 800V                        | Sarkes Tarzian E-8       |
| CR2                 | 025-044              | Diode, 800V                        | Sarkes Tarzian E-8       |
| CR3                 | 025-007              | Diode, 400V                        | General Electric A13DZ   |
| CR4                 | 025-007              | Diode, 400V                        | General Electric A13DZ   |
| CR5                 | 025-007              | Diode, 400V                        | General Electric A13DZ   |
| CR6                 | 025-007              | Diode, 400V                        | General Electric A13DZ   |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION   | MFG., MFG. PART NO. |
|---------------------|----------------------|---------------|---------------------|
| CR7                 | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR8                 | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR9                 | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR10                | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR11                | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR101               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR102               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR103               | 025-012              | Diode, 1N277  | Sylvania 1N457A     |
| CR104               | 025-012              | Diode, 1N277  | Sylvania 1N277      |
| CR105               | 025-034              | Diode, 1N457A | Sylvania 1N277      |
| CR106               | 025-012              | Diode, 1N277  | Sylvania 1N457A     |
| CR107               | 025-012              | Diode, 1N277  | Sylvania 1N277      |
| CR108               | 025-034              | Diode, 1N457A | Sylvania 1N277      |
| CR201               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR202               | 025-012              | Diode, 1N277  | Sylvania 1N457A     |
| CR203               | 025-034              | Diode, 1N457A | Sylvania 1N277      |
| CR204               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR205               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR206               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR301               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR351               | 025-002              | Diode, 1N82AG | Sylvania 1N457A     |
| CR401               | 025-016              | Diode, HD5003 | Sylvania 1N82AG     |
| CR451               | 025-034              | Diode, 1N457A | Hughes HD5003       |
| CR452               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR453               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR454               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR501               | 025-028              | Diode, 1N25   | Sylvania 1N25       |
| CR601               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR602               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR621               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR622               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR641               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR642               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR701               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR702               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR703               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |
| CR704               | 025-034              | Diode, 1N457A | Sylvania 1N457A     |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                | MFG., MFG. PART NO.       |
|---------------------|----------------------|----------------------------|---------------------------|
| CR705               | 025-034              | Diode, 1N457A              | Sylvania 1N457A           |
| CR706               | 025-034              | Diode, 1N457A              | Sylvania 1N457A           |
| CR801               | 025-034              | Diode, 1N457A              | Sylvania 1N457A           |
| CR802               | 025-034              | Diode, 1N457A              | Sylvania 1N457A           |
| CV501               | 064-006              | Varactor, 4pf              | Texscan Corporation       |
| CV502               | 064-006              | Varactor, 4pf              | Texscan Corporation       |
| D1                  | 025-018              | Diode, Zener, 1N708, 5.6V  | Texas Instruments         |
| D2                  | 025-033              | Diode, Zener, VR7A, 7V     | Sarkes Tarzian VR7A       |
| D3                  | 025-018              | Diode, Zener, 1N708, 5.6V  | Texas Instruments         |
| D4                  | 025-033              | Diode, Zener, VR7A, 7V     | Sarkes Tarzian VR7A       |
| D5                  | 025-033              | Diode, Zener, VR7A, 7V     | Sarkes Tarzian VR7A       |
| D6                  | 025-011              | Diode, Zener, ZA24B, 24V   | Mallory ZA24B             |
| D7                  | 025-033              | Diode, Zener, VR7A, 7V     | Sarkes Tarzian VR7A       |
| D101                | 025-009              | Diode, Zener, ZA12B, 12V   | Mallory ZA12B             |
| D102                | 025-033              | Diode, Zener, VR7A, 7V     | Sarkes Tarzian VR7A       |
| D201                | 025-025              | Diode, Zener, ZA18B, 18V   | Mallory ZA18B             |
| D202                | 025-024              | Diode, Zener, VR28A, 28V   | Sarkes Tarzian VR28A      |
| D451                | 025-038              | Diode, Zener, ZA15B, 15V   | Mallory ZA15B             |
| D452                | 025-038              | Diode, Zener, ZA15B, 15V   | Mallory ZA15B             |
| D453                | 025-024              | Diode, Zener, VR28A, 28V   | Sarkes Tarzian VR28A      |
| F1                  | 034-001              | Fuse, 1 Amp                | Littlefuse 312001         |
| I1                  | 011-007              | Bulb                       | Chicago Miniature CM-2181 |
| I2                  | 011-007              | Bulb                       | Chicago Miniature CM-2181 |
| I3                  | 011-007              | Bulb                       | Chicago Miniature CM-2181 |
| I4                  | 011-003              | Bulb, 82V Regulator        | Signalite Z82R10          |
| I5                  | 011-007              | Bulb                       | Chicago Miniature CM-2181 |
| I6                  | 011-007              | Bulb                       | Chicago Miniature CM-2181 |
| IC451               | 062-027              | Integrated Circuit, VA709C | Fairchild V5B-770939      |
| IC452               | 062-027              | Integrated Circuit, VS709C | Fairchild V5B-770939      |
| J301                | 054-003              | Socket, 6 Pins             | Cinch 201-41-06-243       |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION             | MFG., MFG. PART NO.   |
|---------------------|----------------------|-------------------------|-----------------------|
| J302                | 054-003              | Socket, 6 Pins          | Cinch 201-41-06-243   |
| J303                | 054-003              | Socket, 6 Pins          | Cinch 201-41-06-243   |
| J304                | 054-003              | Socket, 6 Pins          | Cinch 201-41-06-243   |
| J305                | 054-003              | Socket, 6 Pins          | Cinch 201-41-06-243   |
| J306                | 054-003              | Socket, 6 Pins          | Cinch 201-41-06-243   |
| J307                | 020-016              | Connector, RF, 5069     | Startronics 5069      |
| J308                | 020-016              | Connector, RF, 5069     | Startronics 5069      |
| J401                | 020-030              | Connector, RF, UG185/U  | Startronics UG185/U   |
| J402                | 020-028              | Connector, RF, UG1098/U | Startronics UG1098/U  |
| J801                | 020-016              | Connector, RF, 5069     | Startronics 5069      |
| J802                | 020-016              | Connector, RF, 5069     | Startronics 5069      |
| J901                | 020-011              | Connector, RF, UG625B/U | Startronics UG625B/U  |
| J902                | 020-011              | Connector, RF, UG625B/U | Startronics UG625B/U  |
| J903                | 020-011              | Connector, RF, UG625B/U | Startronics UG625B/U  |
| J904                | 020-011              | Connector, RF, UG625B/U | Startronics UG625B/U  |
| J905                | 020-011              | Connector, RF, UG625B/U | Startronics UG625B/U  |
| L301                | 035-008              | Inductor, 10mh          | Central Coil H0813-15 |
| L401*               | A035-029             | Factory Selected Value  | Texscan Corporation   |
| L402*               | A035-029             | Factory Selected Value  | Texscan Corporation   |
| L403*               | A035-029             | Factory Selected Value  | Texscan Corporation   |
| L404*               | A035-029             | Factory Selected Value  | Texscan Corporation   |
| L501*               | A035-038-02          | Factory Selected Value  | Texscan Corporation   |
| L502*               | A035-038-02          | Factory Selected Value  | Texscan Corporation   |
| L503*               | A035-039             | Factory Selected Value  | Texscan Corporation   |
| L505*               | A035-038-02          | Factory Selected Value  | Texscan Corporation   |
| L506*               | A035-039             | Factory Selected Value  | Texscan Corporation   |
| Q1                  | 062-006              | Transistor, 2N3054      | RCA 2N3054            |
| Q2                  | 062-015              | Transistor, 2N3568      | Fairchild 2N3568      |
| Q3                  | 062-048              | Transistor, 40362       | RCA 40362             |
| Q4                  | 062-015              | Transistor, 2N3568      | Fairchild 2N3568      |
| Q5                  | 062-038              | Transistor, 2N4900      | Motorola 2N4900       |
| Q6                  | 062-008              | Transistor, 2N3440      | RCA 2N3440            |
| Q7                  | 062-015              | Transistor, 2N3568      | Fairchild 2N3568      |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION        | MFG., MFG. PART NO. |
|---------------------|----------------------|--------------------|---------------------|
| Q8                  | 062-021              | Transistor, 2N3738 | Motorola 2N3738     |
| Q9                  | 062-048              | Transistor, 40362  | 40362               |
| Q10                 | 062-048              | Transistor, 40362  | 40362               |
| Q11                 | 062-008              | Transistor, 2N3440 | 2N3440              |
| Q12                 | 062-008              | Transistor, 2N3440 | RCA 2N3440          |
| Q101                | 062-002              | Transistor, 2N3565 | Fairchild 2N3565    |
| Q102                | 062-002              | Transistor, 2N3565 | Fairchild 2N3565    |
| Q103                | 062-015              | Transistor, 2N3568 | Fairchild 2N3568    |
| Q104                | 062-015              | Transistor, 2N3568 | Fairchild 2N3568    |
| Q105                | 062-015              | Transistor, 2N3568 | Fairchild 2N3568    |
| Q106                | 062-015              | Transistor, 2N3568 | Fairchild 2N3568    |
| Q107                | 062-025              | Transistor, 2N4360 | Fairchild 2N3568    |
| Q108                | 062-048              | Transistor, 40362  | Fairchild 2N4360    |
| Q109                | 062-002              | Transistor, 2N3565 | RCA 40362           |
| Q110                | 062-002              | Transistor, 2N3565 | Fairchild 2N3565    |
| Q111                | 062-033              | Transistor, VC714  | Fairchild 2N3565    |
| Q112                | 062-022              | Transistor, 2N3565 | Union Carbide UC714 |
| Q113                | 062-015              | Transistor, 2N3568 | Fairchild 2N3565    |
| Q114                | 062-022              | Transistor, 2N3565 | Fairchild 2N3568    |
| Q201                | 062-048              | Transistor, 40362  | Fairchild 2N3565    |
| Q202                | 062-048              | Transistor, 40362  | RCA 40362           |
| Q203                | 062-048              | Transistor, 40362  | RCA 40362           |
| Q204                | 062-033              | Transistor, VC714  | RCA 40362           |
| Q205                | 062-033              | Transistor, VC714  | Union Carbide UC714 |
| Q206                | 062-015              | Transistor, 2N3568 | Union Carbide UC714 |
| Q207                | 062-015              | Transistor, 2N3568 | Fairchild 2N3568    |
| Q208                | 062-015              | Transistor, 2N3568 | Fairchild 2N3568    |
| Q209                | 062-015              | Transistor, 2N3568 | Fairchild 2N3568    |
| Q210                | 062-015              | Transistor, 2N3568 | Fairchild 2N3568    |
| Q211                | 062-025              | Transistor, 2N4360 | Fairchild 2N3568    |
| Q212                | 062-015              | Transistor, 2N3568 | Fairchild 2N4360    |
| Q213                | 062-005              | Transistor, 2N3053 | Fairchild 2N3568    |
| Q301                | 062-024              | Transistor, 2N3644 | RCA 2N3053          |
| Q302                | 062-024              | Transistor, 2N3644 | Fairchild 2N3644    |
| Q303                | 062-024              | Transistor, 2N3644 | Fairchild 2N3644    |
| Q304                | 062-024              | Transistor, 2N3644 | Fairchild 2N3644    |

## DESCRIPTION

TEXSCAN  
STOCK NO.CIRCUIT  
REF. NO.

|      |         |                                                 |                     |
|------|---------|-------------------------------------------------|---------------------|
| Q305 | 062-024 | Transistor, 2N3644                              | Fairchild 2N3644    |
| Q306 | 062-024 | Transistor, 2N3644                              | Fairchild 2N3644    |
| Q401 | 062-029 | Transistor                                      | Texscan Corporation |
| Q402 | 062-029 | Transistor                                      | Texscan Corporation |
| Q403 | 062-029 | Transistor                                      | Texscan Corporation |
| Q404 | 062-031 | Transistor                                      | Texscan Corporation |
| Q451 | 062-008 | Transistor, 2N3440                              | RCA 2N3440          |
| Q452 | 062-008 | Transistor, 2N3440                              | RCA 2N3440          |
| Q453 | 062-008 | Transistor, 2N3440                              | RCA 2N3440          |
| Q454 | 062-048 | Transistor, 40362                               | RCA 40362           |
| Q455 | 062-048 | Transistor, 40362                               | RCA 40362           |
| Q456 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q457 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q458 | 062-048 | Transistor, 40362                               | RCA 40362           |
| Q459 | 062-048 | Transistor, 40362                               | RCA 40362           |
| Q460 | 062-026 | Transistor, 2N3640                              | Fairchild 2N3640    |
| Q501 | 062-032 | Transistor                                      | Texscan Corporation |
| Q502 | 062-032 | Transistor                                      | Texscan Corporation |
| Q601 | 062-044 | Transistor, TD101                               | Sprague TD101       |
| Q603 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q604 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q621 | 062-044 | Transistor, TD101                               | Sprague TD101       |
| Q623 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q624 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q641 | 062-044 | Transistor, TD101                               | Sprague TD101       |
| Q643 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q644 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q645 | 062-025 | Transistor, 2N4360                              | Fairchild 2N4360    |
| Q701 | 062-015 | Transistor, 2N3568                              | Fairchild 2N3568    |
| Q702 | 062-008 | Transistor, 2N3440                              | RCA 2N3440          |
| Q703 | 062-008 | Transistor, 2N3440                              | RCA 2N3440          |
| Q704 | 062-025 | Transistor, 2N4360                              | Fairchild 2N4360    |
| R1   | 046-354 | Resistor, Fixed, 47 ohm, 1W, 10%                | Allen Bradley       |
| R2   | 046-142 | Resistor, Fixed, 5.6K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R3   | 046-124 | Resistor, Fixed, 2.2K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |

|      |         |                                                  |                    |
|------|---------|--------------------------------------------------|--------------------|
| R4   | 047-075 | Resistor, Fixed, 3 ohm, 1W, 1%                   | Sprague 242E-030-5 |
| R5   | 047-075 | Resistor, Fixed, 3 ohm, 1W, 1%                   | Sprague 242E-030-5 |
| R6   | 046-117 | Resistor, Fixed, 1.5K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R7   | 046-142 | Resistor, Fixed, 5.6K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R8   | 048-030 | Resistor, Variable, 1K ohm                       | CTS UPE200RE       |
| R9   | 046-142 | Resistor, Fixed, 1.5K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R10  | 046-142 | Resistor, Fixed, 1.5K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R11  | 046-124 | Resistor, Fixed, 2.2K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R12  | 046-131 | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R13  | 046-142 | Resistor, Fixed, 5.6K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R14  | 048-030 | Resistor, Variable, 1K ohm                       | CTS UPE200RE       |
| R15  | 046-117 | Resistor, Fixed, 1.5K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R16  | 046-180 | Resistor, Fixed, 47K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R17  | 046-463 | Resistor, Fixed, 18K ohm, 1W, 10%                | Allen Bradley      |
| R18  | 046-166 | Resistor, Fixed, 22K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R19  | 046-086 | Resistor, Fixed, 270 ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R20  | 046-180 | Resistor, Fixed, 47K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R21  | 046-479 | Resistor, Fixed, 47K ohm, 1W, 5%                 | Allen Bradley      |
| R22  | 048-026 | Resistor, Variable, 25K ohm                      | CTS UPE200RE       |
| R23  | 046-504 | Resistor, Fixed, 180K ohm, 1W, 5%                | Allen Bradley      |
| R24  | 046-337 | Resistor, Fixed, 18 ohm, 1W, 5%                  | Allen Bradley      |
| R25  | 046-068 | Resistor, Fixed, 100 ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R101 | 047-364 | Resistor, Fixed, 15K ohm, $\frac{1}{2}$ W, 10%   | IRC CEC-70         |
| R102 | 047-364 | Resistor, Fixed, 15K ohm, $\frac{1}{2}$ W, 10%   | IRC CEC-70         |
| R103 | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R104 | 045-780 | Resistor, Fixed, 47K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R105 | 048-026 | Resistor, Variable, 25K ohm                      | CTS UPE200RE       |
| R106 | 045-759 | Resistor, Fixed, 15K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R107 | 045-770 | Resistor, Fixed, 27K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R108 | 048-026 | Resistor, Variable, 25K ohm                      | CTS UPE200RE       |
| R109 | 045-759 | Resistor, Fixed, 15K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley      |
| R110 | 045-819 | Resistor, Fixed, 390K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R111 | 048-033 | Resistor, Variable, 1.5M ohm                     | CTS UPE200RE       |
| R112 | 045-749 | Resistor, Fixed, 8.2K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley      |
| R113 | 047-148 | Resistor, Fixed, 1M ohm, $\frac{1}{2}$ W, 10%    | Welwyn M12         |
| R114 | 047-370 | Resistor, Fixed, 33.2K ohm, $\frac{1}{2}$ W, 10% | IRC CECT-0         |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                                      | MFG., MFG. PART NO.     |
|---------------------|----------------------|--------------------------------------------------|-------------------------|
| R115                | 047-360              | Resistor, Fixed, 12.1K ohm, $\frac{1}{2}W$ , 10% | IRC CECT-0              |
| R116                | 047-360              | Resistor, Fixed, 12.1K ohm, $\frac{1}{2}W$ , 10% | IRC CECT-0              |
| R117                | 047-360              | Resistor, Fixed, 12.1K ohm, $\frac{1}{2}W$ , 10% | IRC CECT-0              |
| R118                | 045-721              | Resistor, Fixed, 1.8K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R119                | 045-731              | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R120                | 045-763              | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R121                | 045-763              | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R122                | 045-756              | Resistor, Fixed, 12K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R123                | 045-759              | Resistor, Fixed, 15K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R124                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R125                | 045-756              | Resistor, Fixed, 12K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R126                | 045-749              | Resistor, Fixed, 8.2K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R127                | 045-756              | Resistor, Fixed, 12K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R128                | 045-759              | Resistor, Fixed, 15K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R129                | 045-770              | Resistor, Fixed, 27K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R130                | 045-787              | Resistor, Fixed, 68K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R131                | 045-794              | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R132                | 047-139              | Resistor, Fixed, 110K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R133                | 048-121              | Resistor, Variable, 25K ohm                      | IRC CECT-0              |
| R134                | 047-069              | Resistor, Fixed, 90.9K ohm, $\frac{1}{2}W$ , 10% | Beckman 77PR25K         |
| R135                | 047-084              | Resistor, Fixed, 3.75K ohm, $\frac{1}{2}W$ , 1%  | Texas Instruments CR1/2 |
| R136                | 047-359              | Resistor, Fixed, 3.32K ohm, $\frac{1}{2}W$ , 1%  | Electra MF5C            |
| R137                | 045-794              | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10%  | IRC CECT-0              |
| R138                | 045-794              | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R139                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R140                | 045-773              | Resistor, Fixed, 33K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R141                | 045-787              | Resistor, Fixed, 68K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R142                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%    | Allen Bradley           |
| R143                | 045-784              | Resistor, Fixed, 56 ohm, $\frac{1}{2}W$ , 10%    | Allen Bradley           |
| R144                | 046-117              | Resistor, Fixed, 1.5K, $\frac{1}{2}W$ , 10%      | Allen Bradley           |
| R145                | 048-120              | Resistor, Variable, 2K ohm                       | Beckman 77PR2K          |
| R146                | 046-124              | Resistor, Fixed, 2.2K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R147                | 045-766              | Resistor, Fixed, 22K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |
| R148                | 045-738              | Resistor, Fixed, 4.7K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R149                | 045-805              | Resistor, Fixed, 180K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley           |
| R150                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley           |

|      |         |                                                  |                 |
|------|---------|--------------------------------------------------|-----------------|
| R151 | 045-731 | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R152 | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R153 | 048-027 | Resistor, Variable, 100K ohm                     | CTS UPE200RE    |
| R154 | 045-780 | Resistor, Fixed, 47K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R155 | 045-742 | Resistor, Fixed, 5.6K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R156 | 046-417 | Resistor, Fixed, 1.5K ohm, 1W, 1%                | Allen Bradley   |
| R157 | 047-166 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%   | IRC CECT-0      |
| R158 | 045-731 | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R159 | 048-024 | Resistor, Variable, 5K ohm                       | CTS UPE200RE    |
| R160 | 045-749 | Resistor, Fixed, 8.2K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R161 | 048-024 | Resistor, Variable, 5K ohm                       | CTS UPE200RE    |
| R162 | 045-731 | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R163 | 045-784 | Resistor, Fixed, 56K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R164 | 045-749 | Resistor, Fixed, 8.2K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R165 | 048-028 | Resistor, Variable, 500K ohm                     | CTS UPE200RE    |
| R166 | 045-780 | Resistor, Fixed, 47K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R167 | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R168 | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R169 | 060-003 | Resistor, Thermistor, 5K ohm                     | Fenwal JA35J1   |
| R201 | 045-794 | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R202 | 048-097 | Resistor, Variable, 50K ohm                      | Beckman 77PR50K |
| R203 | 047-203 | Resistor, Fixed, 40.2K ohm, $\frac{1}{2}W$ , 10% | IRC CECT-0      |
| R204 | 048-028 | Resistor, Variable, 500K ohm                     | CTS UPE200RE    |
| R205 | 048-028 | Resistor, Variable, 500K ohm                     | CTS UPE200RE    |
| R207 | 045-794 | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R208 | 048-097 | Resistor, Variable, 50K ohm                      | Beckman 77PR50K |
| R209 | 048-028 | Resistor, Variable, 500K ohm                     | CTS UPE200RE    |
| R210 | 048-028 | Resistor, Variable, 500K ohm                     | CTS UPE200RE    |
| R211 | 045-766 | Resistor, Fixed, 22K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R212 | 047-362 | Resistor, Fixed, 2K ohm, 2W, 1%                  | Beckman 77PR50K |
| R213 | 048-096 | Resistor, Variable, 500 ohm                      | IRC AS2         |
| R214 | 047-363 | Resistor, Fixed, 2.7 ohm, 2W, 1%                 | Beckman 77PR500 |
| R215 | 047-363 | Resistor, Fixed, 2.7 ohm, 2W, 1%                 | IRC AS2         |
| R216 | 048-096 | Resistor, Variable, 500 ohm                      | IRC AS2         |
| R217 | 047-362 | Resistor, Fixed, 2K ohm, 2W, 1%                  | Beckman 77PR500 |
| R218 | 045-794 | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10%  | IRC AS2         |
|      |         |                                                  | Allen Bradley   |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                                     | MFG., MFG. PART NO.     |
|---------------------|----------------------|-------------------------------------------------|-------------------------|
| R219                | 046-403              | Resistor, Fixed, 680 ohm, 1W, 10%               | Allen Bradley           |
| R220                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley           |
| R221                | 047-364              | Resistor, Fixed, 15K ohm, $\frac{1}{2}$ W, 1%   | IRC CECT-0              |
| R222                | 047-365              | Resistor, Fixed, 1.21 ohm, $\frac{1}{2}$ W, 1%  | IRC CECT-0              |
| R223                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R224                | 045-696              | Resistor, Fixed, 470 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R225                | 047-364              | Resistor, Fixed, 15K ohm, $\frac{1}{2}$ W, 10%  | IRC CECT-0              |
| R226                | 045-749              | Resistor, Fixed, 8.2K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R227                | 060-001              | Resistor, Thermistor, 1.2K ohm, 5%              | Texas Instruments T11/4 |
| R228                | 045-724              | Resistor, Fixed, 2.2K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R229                | 045-857              | Resistor, Fixed, 3.3M ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R230                | 045-857              | Resistor, Fixed, 3.3M ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R231                | 047-066              | Resistor, Fixed, 1K ohm, $\frac{1}{2}$ W, 1%    | Texas Instruments CR1/2 |
| R232                | 045-696              | Resistor, Fixed, 470 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R233                | 045-749              | Resistor, Fixed, 8.2K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R234                | 045-724              | Resistor, Fixed, 2.2K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R235                | 045-857              | Resistor, Fixed, 3.3M ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R236                | 045-857              | Resistor, Fixed, 3.3M ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R237                | 047-066              | Resistor, Fixed, 1K ohm, $\frac{1}{2}$ W, 1%    | Texas Instruments CR1/2 |
| R238                | 045-731              | Resistor, Fixed, 3.3 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R239                | 045-787              | Resistor, Fixed, 68K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R240                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R241                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R242                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R243                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R244                | 045-812              | Resistor, Fixed, 270K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R245                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R246                | 045-703              | Resistor, Fixed, 680 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R247                | 045-812              | Resistor, Fixed, 270K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R248                | 045-815              | Resistor, Fixed, 330K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley           |
| R249                | 045-756              | Resistor, Fixed, 12K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R250                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R251                | 045-696              | Resistor, Fixed, 470 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R252                | 045-668              | Resistor, Fixed, 100 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R253                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |
| R254                | 045-756              | Resistor, Fixed, 12K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley           |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                                     | MFG., MFG. PART NO. |
|---------------------|----------------------|-------------------------------------------------|---------------------|
| R255                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R301                | 048-025              | Resistor, Variable, 10K ohm                     | CTS UPE200RE        |
| R302                | 048-025              | Resistor, Variable, 10K ohm                     | CTS UPE200RE        |
| R303                | 048-025              | Resistor, Variable, 10K ohm                     | CTS UPE200RE        |
| R304                | 048-025              | Resistor, Variable, 10K ohm                     | CTS UPE200RE        |
| R305                | 048-025              | Resistor, Variable, 10K ohm                     | CTS UPE200RE        |
| R306                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R307                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R308                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R309                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R310                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R311                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R312                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R313                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R314                | 045-808              | Resistor, Fixed, 220K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley       |
| R315                | 045-668              | Resistor, Fixed, 100 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R316                | 045-808              | Resistor, Fixed, 220K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley       |
| R317                | 045-668              | Resistor, Fixed, 100 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R318                | 045-808              | Resistor, Fixed, 220K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley       |
| R319                | 045-668              | Resistor, Fixed, 100 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R320                | 045-808              | Resistor, Fixed, 220K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley       |
| R321                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R322                | 045-680              | Resistor, Fixed, 330 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R323                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R324                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R325                | 048-026              | Resistor, Variable, 25K ohm                     | CTS UPE200RE        |
| R326                | 045-836              | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R327                | 048-130              | Resistor, Variable, 100K/100K                   | Texscan Corporation |
| R328                | 045-815              | Resistor, Fixed, 330K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley       |
| R329                | 046-180              | Resistor, Fixed, 47K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R330                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R331                | 045-836              | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley       |
| R332                | 048-131              | Resistor, Variable, 10K ohm                     | CTS Series 550      |
| R333                | 045-808              | Resistor, Fixed, 720K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley       |
| R334                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |
| R335                | 045-680              | Resistor, Fixed, 330 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley       |

CIRCUIT  
REF. NO.

TEXSCAN  
STOCK NO.

DESCRIPTION

MFG., MFG. PART NO.

|      |         |                  |                                |               |
|------|---------|------------------|--------------------------------|---------------|
| R351 | 045-682 | Resistor, Fixed, | 220 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R352 | 045-752 | Resistor, Fixed, | 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R353 | 045-658 | Resistor, Fixed, | 56 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R354 | 045-658 | Resistor, Fixed, | 56 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R355 | 045-696 | Resistor, Fixed, | 470 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R356 | 045-672 | Resistor, Fixed, | 120 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R357 | 045-668 | Resistor, Fixed, | 100 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R358 | 045-672 | Resistor, Fixed, | 120 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R401 | 045-717 | Resistor, Fixed, | 1.5K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley |
| R402 | 045-752 | Resistor, Fixed, | 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R403 | 045-640 | Resistor, Fixed, | 220 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R404 | 045-654 | Resistor, Fixed, | 47 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R405 | 046-051 | Resistor, Fixed, | 39 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R406 | 045-749 | Resistor, Fixed, | 8.2K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley |
| R407 | 045-640 | Resistor, Fixed, | 220 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R408 | 045-647 | Resistor, Fixed, | 33 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R409 | 045-703 | Resistor, Fixed, | 680 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R411 | 045-654 | Resistor, Fixed, | 47 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R412 | 046-056 | Resistor, Fixed, | 51 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R413 | 045-647 | Resistor, Fixed, | 33 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R414 | 045-668 | Resistor, Fixed, | 100 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R415 | 045-728 | Resistor, Fixed, | 2.7K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley |
| R416 | 045-693 | Resistor, Fixed, | 390 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R417 | 045-647 | Resistor, Fixed, | 33 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R418 | 046-040 | Resistor, Fixed, | 18 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R419 | 045-745 | Resistor, Fixed, | 6.8K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley |
| R420 | 045-612 | Resistor, Fixed, | 4.7 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R421 | 045-728 | Resistor, Fixed, | 2.7K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley |
| R422 | 045-654 | Resistor, Fixed, | 47 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R423 | 045-626 | Resistor, Fixed, | 10 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R424 | 045-752 | Resistor, Fixed, | 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley |
| R425 | 045-747 | Resistor, Fixed, | 7.5K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley |
| R426 | 045-630 | Resistor, Fixed, | 12 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R427 | 046-386 | Resistor, Fixed, | 270 ohm, $1W$ , 10%            | Allen Bradley |
| R428 | 045-626 | Resistor, Fixed, | 10 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |
| R429 | 045-640 | Resistor, Fixed, | 22 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                                     | MFG., MFG. PART NO. |
|---------------------|----------------------|-------------------------------------------------|---------------------|
| R430                | 045-612              | Resistor, Fixed, 4.7 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R431                | 045-626              | Resistor, Fixed, 10 ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley       |
| R432                | 046-682              | Resistor, Fixed, 220 ohm, 2W, 10%               | Allen Bradley       |
| R433                | 045-682              | Resistor, Fixed, 220 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R434                |                      | Factory Selected Value                          |                     |
| R435                | 045-693              | Resistor, Fixed, 390 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R436                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley       |
| R451                | 045-647              | Resistor, Fixed, 33 ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley       |
| R452                | 045-759              | Resistor, Fixed, 15K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R453                | 045-665              | Resistor, Fixed, 82 ohm, $\frac{1}{2}$ W, 10%   | Allen Bradley       |
| R454                | 045-703              | Resistor, Fixed, 680 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R455                | 045-791              | Resistor, Fixed, 82K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R456                | 045-763              | Resistor, Fixed, 18K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R457                | 045-794              | Resistor, Fixed, 100K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R458                | 045-752              | Resistor, Fixed, 10K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R459                | 045-724              | Resistor, Fixed, 2.2K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R460                | 045-738              | Resistor, Fixed, 4.7K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R461                | 045-738              | Resistor, Fixed, 4.7K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R462                | 045-749              | Resistor, Fixed, 8.2K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R463                | 045-766              | Resistor, Fixed, 22K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R464                | 045-763              | Resistor, Fixed, 18K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R465                | 045-763              | Resistor, Fixed, 18K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R466                | 045-815              | Resistor, Fixed, 330K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R467                | 045-815              | Resistor, Fixed, 330K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R468                | 048-031              | Resistor, Variable, 200K ohm                    | CTS 200RS           |
| R469                | 048-032              | Resistor, Variable, 1M ohm                      | CTS UPE200RE        |
| R470                | 045-763              | Resistor, Fixed, 18K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R471                | 046-403              | Resistor, Fixed, 680 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R472                | 046-403              | Resistor, Fixed, 680 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R473                | 045-759              | Resistor, Fixed, 15K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R474                | 045-749              | Resistor, Fixed, 5.6K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R475                | 045-756              | Resistor, Fixed, 12K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R476                | 045-808              | Resistor, Fixed, 220K ohm, $\frac{1}{2}$ W, 10% | Allen Bradley       |
| R477                | 045-766              | Resistor, Fixed, 22K ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R478                | 045-696              | Resistor, Fixed, 470 ohm, $\frac{1}{2}$ W, 10%  | Allen Bradley       |
| R479                | 048-122              | Resistor, Variable, 5K ohm                      | Beckman 77PR5K      |

## DESCRIPTION

TEXSCAN  
STOCK NO.CIRCUIT  
REF. NO.

|       |         |                                                 |                 |
|-------|---------|-------------------------------------------------|-----------------|
| R480  | 045-696 | Resistor, Fixed, 470 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R481  | 045-759 | Resistor, Fixed, 15K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R482  | 048-123 | Resistor, Variable, 20K ohm                     | Beckman 77PR20K |
| R483  | 045-749 | Resistor, Fixed, 8.2K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley   |
| R484  | 045-770 | Resistor, Fixed, 27K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R485  | 045-721 | Resistor, Fixed, 1.8K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley   |
| R486  | 045-700 | Resistor, Fixed, 560 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R487  | 045-791 | Resistor, Fixed, 82K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R488  | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R489  | 045-794 | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley   |
| R490  | 045-682 | Resistor, Fixed, 220 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R491  | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R492  | 048-122 | Resistor, Variable, 5K ohm                      | Beckman 77PR5K  |
| R493  | 045-801 | Resistor, Fixed, 150K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley   |
| R494  | 045-763 | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R501  | 045-759 | Resistor, Fixed, 15K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R502  | 045-745 | Resistor, Fixed, 6.8K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley   |
| R503  | 045-654 | Resistor, Fixed, 47 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R504  | 045-466 | Resistor, Fixed, 22K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R505  | 045-658 | Resistor, Fixed, 56 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R506  | 045-759 | Resistor, Fixed, 15K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R507  | 045-745 | Resistor, Fixed, 6.8K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley   |
| R508  | 045-654 | Resistor, Fixed, 47 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R509  | 045-466 | Resistor, Fixed, 22K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R510  | 045-658 | Resistor, Fixed, 56 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R511  | 045-696 | Resistor, Fixed, 470 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R512* |         | Factory Selected Value                          |                 |
| R513  | 045-626 | Resistor, Fixed, 10 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R601  | 045-836 | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R602  | 045-773 | Resistor, Fixed, 33K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R603  | 047-166 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 1%   | IRC CECT-0      |
| R604  | 047-360 | Resistor, Fixed, 12.1K ohm, $\frac{1}{2}W$ , 1% | IRC CECT-0      |
| R605  | 045-773 | Resistor, Fixed, 33K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |
| R606  | 045-836 | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley   |
| R607  | 045-721 | Resistor, Fixed, 1.8K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley   |
| R608  | 045-731 | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley   |
| R609  | 045-763 | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley   |

MFG., MFG. PART NO.

DESCRIPTION

TEXSCAN  
STOCK NO.

CIRCUIT  
REF. NO.

|      |         |                                                 |                |
|------|---------|-------------------------------------------------|----------------|
| R610 | 045-763 | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R611 | 045-756 | Resistor, Fixed, 12K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R612 | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R613 | 047-388 | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 1%    | IRC CECT-0     |
| R614 | 048-122 | Resistor, Variable, 5K ohm                      | Beckman 77PR5K |
| R615 | 048-122 | Resistor, Variable, 5K ohm                      | Beckman 77PR5K |
| R616 | 047-081 | Resistor, Fixed, 4.7K ohm, $\frac{1}{2}W$ , 1%  | IRC CECT-0     |
| R621 | 045-836 | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley  |
| R622 | 045-773 | Resistor, Fixed, 33K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R623 | 047-166 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | IRC CECT-0     |
| R624 | 047-360 | Resistor, Fixed, 12.1K ohm, $\frac{1}{2}W$ , 1% | IRC CECT-0     |
| R625 | 045-773 | Resistor, Fixed, 33K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R626 | 045-836 | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley  |
| R627 | 045-721 | Resistor, Fixed, 1.8K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R628 | 045-731 | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R629 | 045-763 | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R630 | 045-763 | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R631 | 045-756 | Resistor, Fixed, 12K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R632 | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R633 | 047-388 | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 1%    | IRC CECT-0     |
| R634 | 048-122 | Resistor, Variable, 5K ohm                      | Beckman 77PR5K |
| R635 | 048-122 | Resistor, Variable, 5K ohm                      | Beckman 77PR5K |
| R636 | 047-081 | Resistor, Fixed, 4.7K ohm, $\frac{1}{2}W$ , 1%  | IRC CECT-0     |
| R641 | 045-836 | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley  |
| R642 | 045-773 | Resistor, Fixed, 33K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R643 | 047-166 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 1%   | IRC CECT-0     |
| R644 | 047-360 | Resistor, Fixed, 12.1K ohm, $\frac{1}{2}W$ , 1% | IRC CECT-0     |
| R645 | 045-773 | Resistor, Fixed, 33K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R646 | 045-882 | Resistor, Fixed, 470K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R647 | 045-721 | Resistor, Fixed, 1.8K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R648 | 045-731 | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R649 | 045-763 | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R650 | 045-763 | Resistor, Fixed, 18K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R651 | 045-756 | Resistor, Fixed, 12K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R652 | 045-728 | Resistor, Fixed, 2.7K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R653 | 045-742 | Resistor, Fixed, 5.6K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R654 | 047-388 | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 1%    | IRC CECT-0     |

|      |         |                                                 |                |
|------|---------|-------------------------------------------------|----------------|
| R655 | 048-122 | Resistor, Variable, 5K ohm                      | Beckman 77PR5K |
| R656 | 048-122 | Resistor, Variable, 5K ohm                      | Beckman 77PR5K |
| R657 | 047-081 | Resistor, Fixed, 4.7K ohm, $\frac{1}{2}W$ , 1%  | IRC CECT-0     |
| R658 | 045-794 | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R659 | 045-752 | Resistor, Fixed, 10K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R660 | 045-836 | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley  |
| R661 | 045-738 | Resistor, Fixed, 4.7K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R662 | 045-738 | Resistor, Fixed, 4.7K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R663 | 045-728 | Resistor, Fixed, 2.7K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R664 | 045-728 | Resistor, Fixed, 2.7K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R665 | 045-728 | Resistor, Fixed, 2.7K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R701 | 048-027 | Resistor, Variable, 100K ohm                    | Allen Bradley  |
| R702 | 048-027 | Resistor, Variable, 100K ohm                    | CTS UPE200RE   |
| R703 | 048-026 | Resistor, Variable, 25K ohm                     | CTS UPE200RE   |
| R704 | 048-027 | Resistor, Variable, 100K ohm                    | CTS UPE200RE   |
| R705 | 048-025 | Resistor, Variable, 10K ohm                     | CTS UPE200RE   |
| R706 | 048-031 | Resistor, Variable, 200K ohm                    | CTS UPE200RE   |
| R707 | 045-794 | Resistor, Fixed, 100K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R708 | 046-477 | Resistor, Fixed, 39K ohm, $1W$ , 10%            | Allen Bradley  |
| R709 | 046-477 | Resistor, Fixed, 39K ohm, $1W$ , 10%            | Allen Bradley  |
| R710 | 045-791 | Resistor, Fixed, 82K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R711 | 048-025 | Resistor, Variable, 10K ohm                     | CTS UPE200RE   |
| R712 | 048-031 | Resistor, Variable, 200K ohm                    | CTS UPE200RE   |
| R713 | 048-026 | Resistor, Variable, 25K ohm                     | CTS UPE200RE   |
| R714 | 048-027 | Resistor, Variable, 100K ohm                    | CTS UPE200RE   |
| R715 | 048-027 | Resistor, Variable, 100K ohm                    | CTS UPE200RE   |
| R716 | 048-027 | Resistor, Variable, 100K ohm                    | CTS UPE200RE   |
| R717 | 048-023 | Resistor, Variable, 2K ohm                      | CTS UPE200RE   |
| R718 | 045-731 | Resistor, Fixed, 3.3K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R719 | 048-023 | Resistor, Variable, 2K ohm                      | CTS UPE200RE   |
| R720 | 045-703 | Resistor, Fixed, 680 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R721 | 045-703 | Resistor, Fixed, 680 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |
| R722 | 045-743 | Resistor, Fixed, 6.8K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley  |
| R723 | 048-024 | Resistor, Variable, 5K ohm                      | CTS UPE200RE   |
| R724 | 048-023 | Resistor, Variable, 2K ohm                      | CTS UPE200RE   |
| R725 | 048-030 | Resistor, Variable, 1K ohm                      | CTS UPE200RE   |
| R726 | 045-693 | Resistor, Fixed, 390 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley  |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION                                     | MFG., MFG. PART NO.   |
|---------------------|----------------------|-------------------------------------------------|-----------------------|
| R727                | 045-714              | Resistor, Fixed, 1.2K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R728                | 045-735              | Resistor, Fixed, 3.9K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R730                | 048-024              | Resistor, Variable, 5K ohm                      | CTS UPE200RE          |
| R731                | 045-710              | Resistor, Fixed, 1K ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley         |
| R732                | 045-836              | Resistor, Fixed, 1M ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley         |
| R733                | 045-728              | Resistor, Fixed, 2.2K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R734                | 045-808              | Resistor, Fixed, 220K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R735                | 045-714              | Resistor, Fixed, 1.2K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R736                | 045-717              | Resistor, Fixed, 1.5K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R737                | 045-735              | Resistor, Fixed, 3.9K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R738                | 048-022              | Resistor, Variable, 500 ohm                     | CTS UPE200RE          |
| R739                | 045-714              | Resistor, Fixed, 1.2K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R740                | 045-665              | Resistor, Fixed, 82 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley         |
| R801                | 057-061              | Switch, SPST/50K ohm                            | Texscan Corporation   |
| R802                | 045-798              | Resistor, Fixed, 120K ohm, $\frac{1}{2}W$ , 10% | Allen Bradley         |
| R804                | 057-055              | Switch, 4P4T / 100K ohm                         | Texscan Corporation   |
| R805                | 045-780              | Resistor, Fixed, 47K ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley         |
| R807                | 046-100              | Resistor, Fixed, 560 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley         |
| R808                | 048-131              | Resistor, Variable, 10K ohm                     | Texscan Corporation   |
| R809                | 048-129              | Resistor, Variable, 250K ohm, 100K ohm          | Texscan Corporation   |
| R810                | 048-129              | Resistor, Variable, 250K ohm, 100K ohm          | Texscan Corporation   |
| R811                | 048-128              | Resistor, Variable, 200K ohm, 10 Turn           | Bourns 3501S-1-204    |
| R812                | 048-128              | Resistor, Variable, 200K ohm, 10 Turn           | Bourns 3501S-1-204    |
| R813                | 048-081              | Resistor, Variable, 1M ohm                      | CTS RU5LAYSBI05B      |
| R814                | 048-081              | Resistor, Variable, 1M ohm                      | CTS RU5LAYSBI05B      |
| R815                | 048-127              | Resistor, Variable, 2K ohm, 10 Turn             | Bourns 3500S-2-202    |
| R816                | 045-764              | Resistor, Fixed, 20K ohm, $\frac{1}{2}W$ , 5%   | Allen Bradley         |
| R817                | 048-126              | Resistor, Variable, 10K ohm, 10 Turn            | Bourns 3500S-103      |
| R818                | 045-665              | Resistor, Fixed, 82 ohm, $\frac{1}{2}W$ , 10%   | Allen Bradley         |
| R819                | 046-103              | Resistor, Fixed, 680 ohm, $\frac{1}{2}W$ , 10%  | Allen Bradley         |
| R901                | 048-036              | Resistor, Variable, 5K ohm                      | CTS UPE200RE          |
| R902                | 048-034              | Resistor, Variable, 250 ohm                     | CTS UPE200RE          |
| S1                  | 057-061              | Switch, SPST/50K ohm                            | Texscan Corporation   |
| S2                  | 057-031              | Switch, Slide, DPDT                             | Continental Wirt      |
| S201                | 057-003              | Switch, Slide, DPDT                             | Continental Wirt G126 |
| S202                | 057-003              | Switch, Slide, DPDT                             | Continental Wirt G126 |

| CIRCUIT<br>REF. NO. | TEXSCAN<br>STOCK NO. | DESCRIPTION           | MFG., MFG. PART NO.       |
|---------------------|----------------------|-----------------------|---------------------------|
| S301                | 057-056              | Switch, 16P2T         | Texscan Corporation       |
| S302                | 057-056              | Switch, 16P2T         | Texscan Corporation       |
| S303                | 057-056              | Switch, 16P2T         | Texscan Corporation       |
| S304                | 057-056              | Switch, 16P2T         | Texscan Corporation       |
| S305                | 057-056              | Switch, 16P2T         | Texscan Corporation       |
| S306                | 057-056              | Switch, 16P2T         | Texscan Corporation       |
| S307                | 057-056              | Switch, 16P2T         | Texscan Corporation       |
| S308                | 057-056              | Switch, 16P2T         | Texscan Corporation       |
| S804                | 057-055              | Switch, 4P4T/100K ohm | Texscan Corporation       |
| S805                | 057-054              | Switch, 12P6T         | Texscan Corporation       |
| S806                | 057-058              | Switch, 2P2T          | Texscan Corporation       |
| S807                | 057-057              | Switch, 2P2T          | Texscan Corporation       |
| S808                | 057-060              | Switch, 4P2T          | Texscan Corporation       |
| S809                | 057-060              | Switch, 4P2T          | Texscan Corporation       |
| S810                | 057-059              | Switch, 6P2T          | Texscan Corporation       |
| S811                | 057-059              | Switch, 6P2T          | Texscan Corporation       |
| S812                | 057-059              | Switch, 6P2T          | Texscan Corporation       |
| S813                | 057-052              | Switch, 12P3T         | Texscan Corporation       |
| T1                  | 061-015              | Transformer           | American Magnetics AM3952 |
| Z201                | 070-001              | Relay, Reed, 6V       | Magnecraft WID4EPX-2      |





